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This journal, Langstroth's handwritten observations, notes and sketches on bees, was composed in an 1834 edition of John Todd's *Index Rerum* with additional pages inserted. Todd's introduction and directions presented at the beginning of this journal are highly recommended reading, as Langstroth followed and sometimes strayed from the prescribed organizational scheme.

Todd's method stated that entries were to be listed based on the first letter of the topic followed by the first vowel encountered. For example, "Drones" is entered under "**D o**"; "Hive" is under "**H i**" and so forth. From time to time Langstroth's writings on a topic extend across two pages, left to right. Occasionally his thoughts run for many pages, which necessitated inserting blank pages to capture his ideas. At times he used his journal to record thoughts for his sermons as topics freely intermingled with his bee observations. Daily weather notes, sketches, diagrams, sales figures for hives and other goods are also present.

Multiple instances of varying page numberings appear throughout the journal, probably added by librarians, archivists or researchers over the years. During the process of creating structural metadata for online viewing the page numbers described in the metadata were only those identified as being from Langstroth's own handwriting. All other page numbering has been ignored.

Although it is unclear if they knew each other, Langstroth (1810-1895) and Todd (1800-1873) were both Yale graduates, each were Congregationalist preachers in Massachusetts and both lived in Philadelphia at various times. According to his autobiography, *John Todd, The Story of his Life told mainly by himself* (New York: Harper & Brothers, 1876), Todd was also an amateur beekeeper.

A partial transcript of Langstroth's journal is in the Phillips Beekeeping Collection of the Albert R. Mann Library, Cornell.

Michael Cook
Ithaca, NY
March 2020

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This journal was restored and rebound in 1909 by Anne A. Weeks of Ithaca, New York. The pages were retained in exactly the same order as proposed by the Rev. L. L. Langstroth, but a number of blank pages at the end of the journal were removed in order to reduce the bulk of the volume.

[illegible]

E 7410

INDEX RERUM:

OR

INDEX OF SUBJECTS;

INTENDED AS A MANUAL,

TO AID THE

STUDENT AND THE PROFESSIONAL MAN,

IN PREPARING HIMSELF FOR USEFULNESS.

WITH

AN INTRODUCTION,

ILLUSTRATING ITS UTILITY AND METHOD OF USE.

BY REV. JOHN TODD,
PASTOR OF THE EDWARDS CHURCH, NORTHAMPTON.

Nocturnâ versate manu, versate diurnâ.—Hor.

NORTHAMPTON.....J. H. BUTLER.

1834.

Entered according to Act of Congress, in the year 1833,

By J. H. Butler,

In the Clerk's Office of the District Court of Massachusetts.

METCALF, PRINTER.....NORTHAMPTON.

INTRODUCTION.

The plan of the following sheets grew out of the author's own wants, and his repeated attempts to supply these wants. Its utility has been tested by his own experience. In conversation with gentlemen of different professions, to whom he has shewn his own Index, there has been but one opinion expressed, a strong approbation of the plan, and an earnest wish that it may become the property of every student. Its only claim is, that it will aid the diligent student, and if perseveringly followed, it will at the end of a very few years, place a fund of knowledge at his ready command, which no money can purchase.

Should any one procure this Book with the expectation that it will supersede labor and study, he will be deservedly disappointed. No plans or inventions can ever do that. But if he hopes it will, with a very moderate share of time and labor spent upon it, yield him a great reward, I think I may venture to promise that he will not be disappointed.

The Common-place Book of Locke is the only one that has come into much notice; and if that has, it is not owing to any intrinsic merit which it possesses, but to its bearing his own great name, and professing to be the result of his experience. But neither that nor any other Common-place Book which I have ever seen, will either come into any thing like extensive use, or be of any essential advantage to the student, and the man of literary habits. The reason is perfectly obvious to any one who has tried to use them for any length of time. They require too much time, and too much labor. Every thing that is saved must be copied out in full, and then noted also in the Index. Few have the time, and fewer still the patience to do this. Books are so common, and so constantly multiplying, that few have the courage to

undertake to make extracts, and to copy what is really valuable. I have seen multitudes of such books commenced, but have seen but very few which were not abandoned at an early hour.

Every one is aware that we frequently want the thoughts, or the materials of thought with which we have met in books which we have read, but which, though now sought after in every corner of the memory, are not to be found. Their faint impressions are seen, dim, like the ghosts of Ossian, but too distant and too undefined, to be of any use. Nor can we recollect the books in which we met them. We frequently too, wish to recall a fact, or a striking passage, or a valuable discussion, but the memory is tasked in vain. Few are aware, unless they have bestowed particular thought on the subject, how much of all our valuable reading is lost, because we retain only faint impressions of it, and have no method of recalling it.

Let a young man when he begins life, be in the habit of making an Index to all that he reads which is truly valuable, (and he ought to read nothing else,) and at the age of thirty-five or forty, he has something of his own, and which no price could purchase. Many would think hundreds of dollars well spent, could they purchase what they have thrown away; and what each one might most easily save for himself; and to aid in saving which, this Book is prepared.

One of the most distinguished and accomplished scholars of whom this or any other country can boast,* makes the following remarks; "Old-fashioned economists will tell you never to pass an old nail, or an old horse-shoe, or buckle, or even a pin, without taking it up; because although you may not want it now, you will find a use for it some time or other. I say the same thing to you with regard to knowledge. However useless it may appear to you, at the moment, seize upon all that is fairly within your reach. For there is not a fact, within the whole circle of human observation, nor even a fugitive anecdote that you read in a newspaper, or hear in conversation, that will not come in play, some time or other: and occasions will arise when they will, involuntarily, present their dim shadows in the train of your think-

* William Wirt.

ing and reasoning, as belonging to that train, and you will regret that you cannot recall them more distinctly."

This is certainly a valuable thought, and a valuable opinion of a great man. It is appropriate to my subject and design. I read it some two or three years since. And now, how am I to recall it, when needed? I cannot copy out all such valuable thoughts with which I meet; and it is in vain to command the memory to retain them. Making extracts with the pen is so tedious, that the very name of a Common-place Book is associated with drudgery, and wearisomeness. But by the Index which I make out, I can preserve this, or any other extract which I wish, and that readily.

Some may think I have done little to aid them, by laying out the work of years. I might indeed, have published my own Index Rerum, and it would probably have been acceptable to some in my own profession. But it would be of but little value to any one of another profession. Every man ought to make out his own Index, according to his profession, employments, habits of reading and thinking. An Index filled out, if confined to one profession, or one kind of reading, would be too contracted for general use; and if it embraced the whole circle of reading, it would be too voluminous.

Some may hesitate about commencing such a Book, since their youth is past, and the day in which to lay up knowledge seems also to be past. Such, however, have special need of the aid here offered, and will receive special benefit from it, because, it is never too late to read to advantage, and because knowledge, like the seed of the fruit-tree which you put into the ground to-day, will yield its fruits soon; and because also, memory, as life advances, becomes more treacherous, and needs something to assist it. I feel confident that the plan is as well adapted to those who have lived past their youth, as to any other class.

The idea of publishing blank sheets is not very cheering to the fame of authorship; but mortified pride may have this consoling reflection, that many who fill out their sheets, had better have left them blank; and that each one can fill out this book more to his own satisfaction and benefit, than the most gifted mind could do for him.

DIRECTIONS FOR USING THIS INDEX.

1. Read nothing which is not worth remembering, and which you may not wish hereafter to review. Have your Index at hand, and when you meet with any thing of interest, just note it down, the subject, the Book, and the page, and any word designating its qualities, which you may please, according to the method hereafter described. The Index should be your constant companion when you read.

2. Make your Index according to subjects as much as possible, selecting that word which conveys the best idea of the subject.

3. You will find the Index ruled with blue ink, with a wide margin on the left hand of each page. The margin is to contain the word selected as a guide to the subject noted down. On the corners of the page, you will find the letters of the alphabet (capitals) and in the centre, the first five vowels, a. e. i. o. u. Each letter of the alphabet has two pages to each of the vowels, and of course, each letter has ten pages.

4. When you read any thing which you may hereafter need, place the principal word in the margin, under the first letter in that word, and the first vowel in it. I will here give some examples as they stand in my own Index. Suppose I wish to note something relating to America. I turn to A. and the vowel e. because A. is the first letter, and e. is the first vowel—thus:

AMERICA,	supposed to be known in the time of Homer: Thomas' Hist. Print. vol. 1. p. 20.
ATHEISM,	of France, picture of: Schlegel's Lect. v. 2. p. 199.
BRADFORD,	Governor, notice of: Am. Quart. Rev. v. 2. p. 497. this under B. a.
BROUGHAM,	graphic and powerful description of: Port. Rhet. Reader, p. 248.
CLINTON,	De Witt, Memoir of, &c. (good) Am. Quart. Rev. v. 5. p. 475. this under C. i.
CHRISTIAN,	religion, services rendered to mankind: Chateaub. Beaut. Christianity, p. 453.
DANIEL,	analysis of the book of: Con. Ev. Mag. v. 4. p. 46. this under D. a.
DIFFICULTIES,	of our probation considered: Butler's Anal. part 1. ch. 4.
DESTRUCTION,	of Jerusalem, accurately described: Smith's view of the Hebs. Chap. 1.
ELOQUENCE,	remarks upon, (good) Goldsmith's Bee, p. 173. this under E. o.
ENGLISH,	composition, examples of its steady improvement: Irv. Elem. Comp. p. 206.
ELOQUENT,	remarks on slavery: Cunningham's World without Souls. p. 87.

FACULTIES, of man, distinguished from those of the brute: Coleridge's Friend, p. 130.
this under F. a.
FREDERIC, the Great—instances of severity and ingratitude: Buck's Works, v. 4. p. 225.
GRIESBACH'S, New Test. remarks on: Ch. Spec. vol. 5. p. 187.
under G. i.
GENTLENESS, beautiful example of its power: Mem. of Martyn, part 2. Oct. 20. p. 197.
HORRORS, of conscience, a powerful conception of: Shak. Rich. III. Clarence's Dream.
under H. o.
HIERO, of Syracuse, remarkable answer to, concerning the nature of God: Cicero de nat. [Deor. L. 1.
HUME & FINLEY, their death compared, (powerful and beautiful, by Dr. Mason.) Panoplist v. 4. p. [241. & Ch. Magazine.
INDIANS, Pequot, beautiful description of the war with: Trumb. Hist. Con. vol. 1. chap. 5.
under I. i.
IMPORTANCE, of Christianity to the world: Butler's Anal. p. 155.
JEWS, some black found in India: Buchanan's Res. p. 255.
J. e.
JESUIT, missions, glowing and partial description of: Chateaub. Beaut. Chris. book 4. p. 413.
JOB, the Book of, investigated: Lowth's Heb. Poet. Lect. 33 & 34.
KNOWLEDGE, no power to sanctify the heart, (good) Bp. Atterbury's Ser. vol. 2. ser. 2.
LEDYARD, his beautiful eulogy on women: Am. Quart. Rev. vol. 3. p. 103.
LANGUAGES, origin of, mod. European: Schlegel's Lect. v. 1. p. 273.
MEMORY, remarkable example of in a painter: Abercrombie's Intel. Pow. p. 112.
MORALITY, of deism, fair specimen of: Buck's Works, v. 5. p. 256.
NIAGARA, falls, short and good description of, by Beecher: Ch. Spec. vol. 3. p. 463.
NOVELS, proof of degeneracy in religion: Wilberforce's View, p. 230.
ORIGINAL, languages, use, and best mode of studying: Diss. Trans. by Stuart, & notes, (good.)
ODE, the Hebrew, great beauty of: Lowth's Heb. Poet. Lect. 25.
PRESS, method of correcting the proofs of: Bigelow's Tech. p. 64.
PARABLE, of Jotham, Judg. 9. 15. delightful exposition of: Stuart's Heb. Chrestom. p. 234.
PRINCESS, Charlotte, sermon on her death, (sublime and eloquent) Hall's Works, vol. 1. p. 179.
QUESTIONS, for thought and study: Appendix to this Book, p. 25.
REFLECTIONS, on the results of the Infidelity of France: Dick on Imp. Soc. p. 439.
ROSSEAU, morbid imagination of: Stewart on the Mind, v. 1. p. 277.
RELIGION, christian, short and unanswerable arguments for: Leslie's Deism, *passim.*

SEIGE,	of Jerusalem by the crusaders, awfully cruel and bloody: James' Hist. Crus. p. 170.
SABBATH,	common modes of unhallowing: Wilberforce's View, p. 123.
"	probably lost during the bondage of Egypt: Wilson on Sab. p. 116.
SOCRATES' &	Christ's doctrines compared, (weak and puerile) Jeff. Writ. v. 3. p. 507.
TOOKE,	John—frugality while a student: Am. Quart. Rev. vol. 5. p. 391.
TRIFLING,	a most beautiful specimen of: Cowp. Corres. p. 171. dat. Nov. 30, 1783.
UNITY,	of the God-head, fine argument for: Yates' Vindication, p. 58.
UNIVERSAL,	salvation, Lectures, condensed and good: Appleton's Lects. Lect. 21, 22, 23. Edwards against Chauncey, passim; (unanswerable.)
VARRO,	beautiful Letter to, from Cicero: Cic. Epist. Lib. 9. Ep. 2.
VOLUPTATE,	et temperantiâ de, Socratatis disputatio: Xen. Memorab. Lib. 3. cap 1.
WORLD,	to be renewed and its material parts to be immortal: Chalmers' Sermons, ser. 7.
WILBERFORCE,	character as a speaker: Port. Rhet. Reader, p. 250.
XYLOCHARTION,	or bark-paper, description of: Am. Quart. Rev. Vol. 2.
YOUNG,	men, importance of: Hawes' Lect. Lect. 1.
ZALEUCUS,	his propitiation for the adultery of his son: Fuller's Works, vol. 2. p. 808.

I have here copied at random one or more specimens under each letter. The selection might, of course, be carried to a much greater extent, but these examples are sufficient to shew the design and method of using this Index. No language can describe the value of such an Index, after it has been growing under the hand of a diligent student for some years. To such I now commend it, hoping and believing that they will find it answering its sole design, which is, to aid them in preparing for usefulness. At the close of the Index is an Appendix which can be used as each one pleases; perhaps for the purpose of recording such facts as are not likely to be met with again.

Northampton, Dec. 1, 1833.

L. L. L. on the Honey Bee.

Bee
Melissa
Apis
Abeille

I shall use the Greek, Latin, English and other terms from Modern Languages so as to obtain room for various remarks

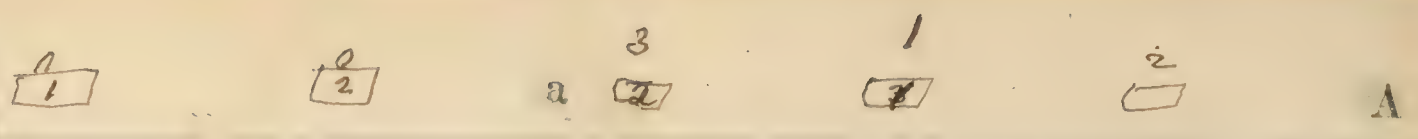
Ar. Swarms —

in July — ~~proceed as before~~ — take out bars — without bees — set 1 hive containing them in 1 place of a strong stock to be reduced — when it has obtained enough bees for a good swarm — carry it to a dark place to be shut up as before — replace 1 old hive — such late formed swarms must be fed of course — whether they are worth 1 trouble and expense of making them — will depend upon circumstances — 1 rapidity with which it is desirable to increase our stock — 1 demand for new colonies &c &c. The ease with which they multiply colonies in favorable latitudes — shows that if they are profitable there is in 1 return of 1 bee a foundation for very rapid increase — in our climate of brief summers and short supplies we may by artificial means attain to something like the same results — For what I have said elsewhere it will be seen that such a rapid increase of colonies is not in our climate compatible with large honey harvests —

Where there is abundance of late food — buckwheat &c — Doubtless a strong hand stock will give the good honey crop in 1 season — then the colonies may be made to give each an artificial swarm — say in July when 1 good harvest is gathered. They will need some feeding at first to encourage breeding &c but will be able to provide their main supplies from fall feed — This is an admirable plan for obtaining 1 largest amount of pure honey and yet rapidly multiply colonies — Two good stocks are made to produce one for honey gathering — The old ones may yield something — ~~then later each of~~ as casting is to be discouraged — then later one is to be got from each of the three thus treating 1 colonies in a year — Of course swarms that must be kept on hand — This may be called Langstroth's plan for rapidly multiplying colonies and yet securing ~~the~~ surplus above of the prime white clover honey — If feeding is resorted to 1 same they may be done where, Fall food is not abundant —

May 15th 12 strong stock. 12+6 = 18 — Have gathers. 18+9 = 27 — Bees that gathers.

May 8th — 1872 Remove an old stock to catch up when enough caught shut up ~~old stock — Send~~ A. S. — to be sent away and replace old stock — or make one of A. S. from two old stocks mixed — by putting A. S. in dark place or shutting up so as to put it when bees have their brood up when in spring — 12th Put first new near old stocks — in a week more old stocks when all young sealed — catch may for the new swarms —



can for Farmers – No 1 – deprived of bees – by shaking off – or by drug with a little ray smoke from below – all 1 bees are if possible to be obtained in 3 – done then bees are out fully gathering – 1, is then to be set in place of two – after its combs have been examined and all Queen cells (if there are any) but one removed – 2 – is put in a new place – 3 – will make a strong swarm – 1, will be a powerful colony for honey making – it will have a young Queen – and will not swarm – 2, may lost a large number of its bees will be taking to kill off its drones – and not swarm – and will recruit to be a large honey gatherer – If there are late supplies before 1 drones are killed off let 1 same plan be followed except that 3 should have half of 1 combs from 1, – Let 12 ~~=~~ old stocks = 12+6 = 18 = stocks for gathering surplus honey from clover – (3 ought to have say 4 combs from 1 – bees are driven into a box) ÷ 18 = stock in July = 18+9 = 27 = stocks at 1 end of 1 year – this may be done in buckwheat regions and get large quantities of pure honey may be gathered – and no feeding ordinarily be needed – Of all 1 modes for artificial swarming 1 simplest and best – requires no rearing of artificial Queens – and but very little trouble – Does away with swarming almost entirely – If more rapid multiplication is desired of course at. 2. – and feeding will be necessary – End. Instead Begin

Then 16 = Spring stock – Fertile Queens on hand for at. 8 – Begin say

1st of May	16+8 = 24	No honey to be taken – Each Queen at. 8. to be at once furnished with fertile Queen – except those last made – or at least to have a young Queen nearly hatched – Buckwheat calculated for last – Half of 1 combs always transferred –
"	24+12 = 36	
June	36+18 = 54	
June	54+27 = 81	
July	81+40 = 121	

!!!
!!!

16 = Spring stock

1st May –	16+8 = 24
" –	16 + (16/2 + 8) = 32
June	16+8+(16+18)/2 + 8 = 44
June	

or

16 = Spring stock

1st May	16+8 = 24
15 "	24+8 = 32
1st Jun	32+12 = 44
15 June	44+16 = 60
15 July	60+30 = 90

This plan allows 1 hives which are furnished with at. 2. young – four weeks to recruit before they are moved – The increase may be secured in good seasons and good locations –

If no at 2. are used = 16

16+8 = 24

16+8+8 = 32

16+8+8+8 = 40

16+8+8+8+8 = 48

48 + 24 = 72

Stocks may J 2 not moved –

Atheists, Eloquent apostrophy to. (R. Hall. Vol 1. P. 48)

Anger of Bees. "I do not remember to have seen it noticed by any writer — that bees never make an attack when they are gorged with honey — and yet a knowledge of this fact is the foundation of many important points in their management. —

Bees when they scarcely fill themselves with honey and this is a reason why at this time they are generally so peaceable — If any operation is to be performed upon bees wh. will be likely to irritate them — they may be kept peaceable by sprinkling them with honey or sugar water — a bee can no more resist a temptation to fill itself with liquid sweets than a miser cd be indifferent to showers of gold — Allow them time to eat their fill and they will be as harmless as flies — unless they are seized — Many persons are accustomed to see a careful operator take a hive to pieces and transfer the bees to another hive with scarcely a single sting — but as soon as bees begin to lick up & running honey they have all disposition to act on offensive — Whenever honey is taken from them in large quantities — they never feel themselves as soon as they perceive that they are separated from their hive — wait until they have done this — and then even cannot to find a place of escape — then allow them to leave and they will fly directly to their hives or that are attempting to sting — In this way a whole apiary may daily be deprived of surplus honey and not a single sting be received — if proper precautions are taken — Raising up a hives and exposing bees to light if it is done only in that way just seems to take bees so much by surprise that they are not disposed to make an attack — I have noticed that bees never make an attack away from their homes — they are conscious to escape if attacked and will only sting if they are taken hold of — Natural Philosophers — prescribe of water — May we not refer to this fact in natural history of bee as a proof of a superintending providence — What wd become of a society if bees were as easily provoked away from their hives as they are when protecting their homes? The farmer wd have to carry the hive with him in a bee-proof drop — * (Next page)

Age of bees. It is supposed that when they are not tax'd
by work - they will live much longer than at other
times - that few die in winter - of old age - but of exposure to
cold and ~~weather~~ of disease - If this is so the importance of hives
well protected against cold - will be very great - if many more bees
will survive the winter - the many deaths occur in winter then
are not natural - but result of exposure and disease -

and same diligence will have to be given to exterminate bees as has been given
to exterminate wolves and tigers - - It has been observed that if a wheaten bee
in is shut bees returning from a feeds will not make an attack - but seem
to be bewildered - Hives may thus be closed when thousands of bees are on
wing and moved with entire impunity - If hives are moved a little dis-
tance from their usual position - the bees are confused and are much less
disposed to resent any liberties taken with them - This might usually be
done when any serious operation is to be performed upon them - The attentive
reader will see how necessary a correct knowledge of bees habits is to their easy
and successful management - If he does not feel interested enough to obtain such
a knowledge I will advise him to have nothing to do with their management or else
he go back to old plan of killing up bees by sulphur -

Curious! It is said that bees, wasps &c will not sting so long as you hold your breath -
that they seem to be unable to penetrate with their stings!!! To me very doubtful -

Vol. 7. P. 22.

Ability. Artificial Swarms. — Sinner's to do his duty — true method of preaching. Chr. Spec.

A knowledge of the best way to multiply colonies by Art. Swarm. indispensable. The discoveries of Huber and others laid a foundation for Art. Swarm. — but for the last half century no advances have been made until of late — Nothing can be done in this way without tamed bees —

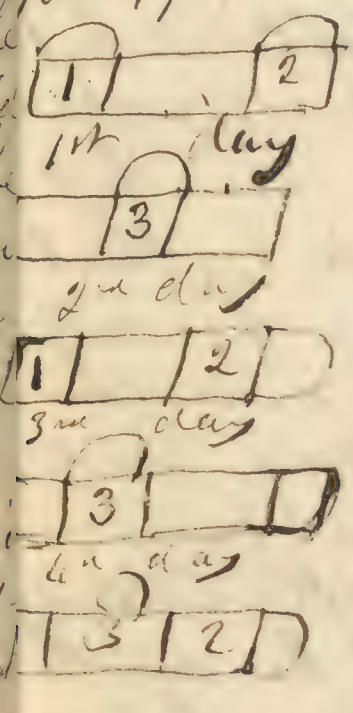
Aristotle — History of insects Book 5th — The opinion of some in his time was that the "King" was a female — Drones males — He notices that drones are produced in hives without a Queen but not workers! A kind of fur called rubbed — a Thesaurus — Black — head bellies — That some contract their entrances to keep drones out — That dry weather is most favorable for honey — wet for swarms — That honey requires time to thicken it — about 20 days — That the eggs of a drone or worker alike — That bees eat worms if injured — That a worm leaves a deposit — stinks — "Ought to by no means a mere copier — ~~he has~~

Feb. 21st 1812 — Take half the comb from a well stocked hive — and all of the bees — place a new hive on a stand of a old one — place at once a old one on a stand of another good stock mixed — In this way a powerful swarm obtained and no risque of any contention — The colony with half face of comb ought to have a young Queen given to them — if none are in a state of forwardness in their cells — The old colony transposed will not probably swarm — and in this way the three stocks will all be honey producers — (23rd) Take half of a comb with the bees shaken off — for a hive to be put in place of a strong stock — or — Take all a bees with half of a comb — and then take part of a comb from a transposed stock with it bees — for No. 2 — or all of a bees with only two or three combs for a new one — and a hive with rest of comb for No 2 — This will require but one hive to be opened — These methods ought to be tested to ascertain relative merits. That which takes ~~the~~

Note — Pack in old hives — after fed in two — see Report of Prince Bangs — see in Bee Journal — see my journal — Dec 16th 1865 —

Slighting Bond of Cds — See 6a —

Mode of forming Swarms — Spring position



In the Spring have a stand for three hives — place on it two swarms — should be placed there the preceding Fall — and in such a gradual way as not to have any Heat — 1 and 2 — are these hives. At the proper time take from 1, 2 — three combs from each — 2 of bird 1 of honey or 2 from each — 1 bird — 1 honey — Remove 1, 2 — from the stand to a little distance — set up 3 with the combs taken from the other two — when you judge that you have got enough bees to make a very large colony — shut up 1, and 2 — next day replace 1, 2 — and open — remove from the stand 3 — shut up — giving it water — 3rd day — replace 3 — opening it — remove 1, 2 — shut up — give water — 4th day replace 1, 2 — open all — It may not be necessary after the 1st day to remove the hives from their stand — If one or two swarms — then comb to be taken from the one that does not swarm — and that to be joined 3 To be relied upon for surplus honey — Doubled swarms always to be relied on for surplus ~~swarm~~ honey — The hives must not be weakened so much that they cannot nurse the brood — In two weeks or less — they will be in readiness to form another swarm each

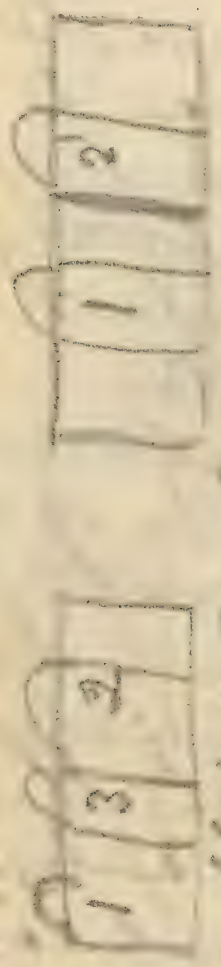
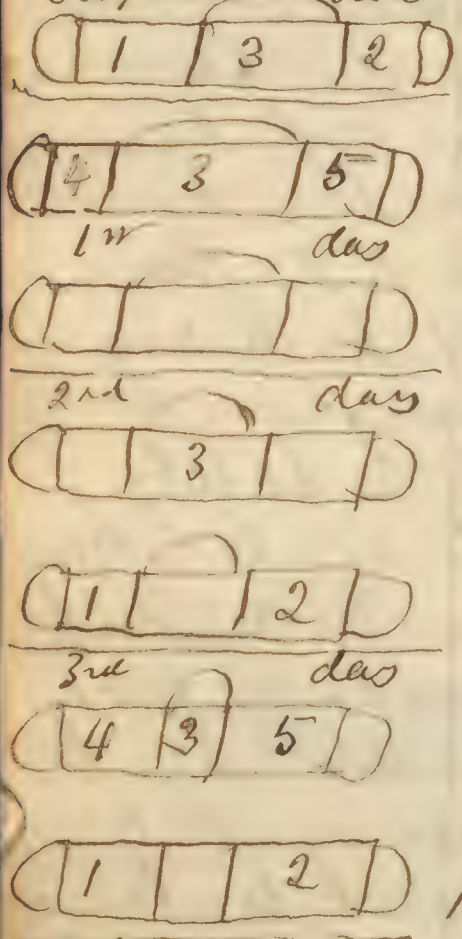


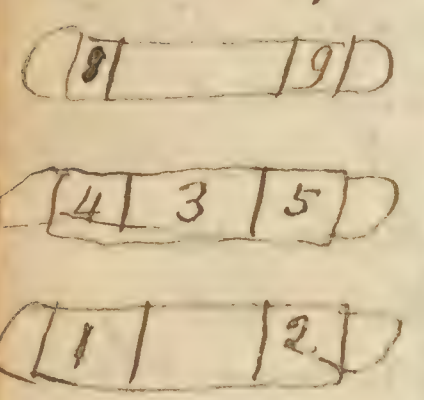
Diagram 1

Art. Swarms

Original Position



A. Swarming Continued — on the same plan



The number of A. Swarms will depend upon the productiveness of the season — food supplied

When ~~If~~ 1, 2 are increased enough to form another Swarm — Remove them from the Stand — take combs from them for 4, 5 — and set 4, 5 in their place — when enough bees have left 1, 2 shut them up with water — next day remove 4, 5 — shut up with water — replace 1, 2 and open — see that they do not enter 3 — 3rd day open 4, 5 — shut up 1, 2 with water — ~~If~~ next day open all — If they do not seem to be familiar with their new home — the alternate shutting and opening may require to be continued longer. If their whole position has been slightly altered are fed when opened a little at the mouth of the hive so as to excite them to active flying — they will become accustomed the earlier to their new place — as bees communicate in the coving — In no case should we desire open stems if we mean to rely upon them for stock hives — the work of raising Queens from the egg or young worm — as they will have so much time that before the young Queens ~~eggs are~~ ~~you~~ are mature — they will have become so much reduced in numbers as not to be able to take care of all her eggs — and nothing but vexation will be the result. They still if possible be furnished with laying Queens — especially the one first made and from which the honey harvest is to be expected — If laying Queens cannot be had — etc. Queens sealed and almost ready to emerge must be given — This shifting plan may be tried side by side with the plan of making up a swarm from a number of hives —

Ar. Swarms

If the season is not a productive one in honey-murmurs Ar. Swarms may be produced by liberal feeding - If we multiply greatly our colonies either by natural or artificial swarming in any season we cannot expect large honey harvests - Great amounts of honey are to be obtained from extra large colonies - but if they are new colonies they will always do more work than an equal number of bees in a non-swarming hive - Very early swarms whether nat. or Ar. ought to have comb and honey in their new hive - Doubling early nat. swarms is very good plan to obtain large amounts of honey - but one of the queens ought to be caught to be used for another swarm.

Early breeding.

This is all important in any system of management - There can be no great success without it. It can only be promoted by having large, healthy stocks in the Fall - and keeping them in hives which preserve them warm - dry and clean in the winter - There may be such a thing as premature breeding - this more apt to occur in thin hives - which feel any unseasonable warmth of the weather more than bees properly protected - such brood often perishes in the sudden changes of the weather leaving the bees fewer than if they had not begun to breed.

Premature-

Ar. Swarms. If any hive swarms naturally then the young Queens when sealed may be taken all but one – to make Ar. Swarms –

Young Queens hive preserved – If taken away and placed on the under tumbler – gauze wire might prevent the Queens from destroying each other – and yet allow heat from the hive to mature them – gauze wire might allow bees to enter and yet be too fine for Queens to pass through –

Ar. Swarm – By sliding the hives along may they not be joined with the greatest facility – At that a swilletto comprise hive did to put on the hive that up, letter to

of a different color decoy the bees –

Quarreling – to prevent if hives are moved and different colonies are to be united some recommend to keep hive that until a very large number of strange bees are collected out side – to feed them in that and then allow them to enter – When bees come home loaded and attend to enter the hive placed on their stand I have found that they are seldom killed – also that a new swarm seldom kills those added in this way –

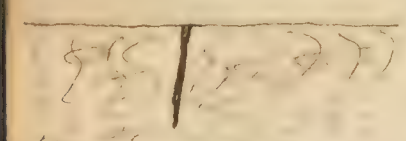
Ar. Swarms for sale – If swarms are to be disposed of or carried some distance say 2 or 3 miles from the apiary – by having spare Queens on hand – hatched in nucleus sheds – swarms may be supplied to order at any time in working season – or few combs may be taken say one or two from a hive – and bees may be taken from a number of hives – by lifting out a board and brushing them into a box or empty hive – Let a bee remain on the bees and shut them up at once in a hive into which they are inserted – towards dusk shake out bees from a box in front of this hive – and they will readily ascend – shut them up and remove them next day – If no Queen can be given them – and there is no drone brood – or drones – if removed when no drones are near a fecundation of a young queen cannot be relied on – In this way a very large number of swarms can be made – A sufficient number of combs and bees for a swarm might at once be taken from – As soon as a comb is taken out of a hive bees upon it will begin to fill themselves with honey – the comb should be placed in a new hive before they begin to fly – Bees gorged with honey will not sting – hence they may be taken from any different hives – If there are no strange bees the hive towards sunset might be set for a few minutes on the stand of a populous one –

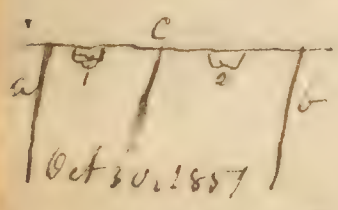
Ar. Swarms — From some experiments of my own and others I think that if bees are confined in a dark place about 48 hours and then put in a new location they will most of them adhere to this new place — This further experiments prove that this is so then it may be made the foundation of a new and improved system of Ar. Swarming — The new swarms formed as mentioned on 1 previous page might be put into a dark cellar — with all supply in their hives and an ex feeder — and kept there till about sun-set of the third day then let them be taken out and set as far from 1 old stands as may be convenient, and by offering them honey (if necessary) let them be excited to fly — If as I suppose almost all of them will re-enter their new habitation and work contentedly there, this with my improved hives will be found a very exceedingly easy and rapid method of multiplying colonies — by 1 experienced and feeble operation — By taking only a small amount of comb and bees from any one hive at once it will be encouraged to renewed activity — We may begin say middle of April — or 1st of May according to latitude and season — * Let this system be united with moderate feeding at night about enough to compensate 1 bees for their loss of comb and workers — and the new hives of new colonies which may be obtained will be surprising — Even if a very considerable number of 1 bees did return to their old homes enough will remain with 1 young hatched and hatching in 1 combs to make vigorous stocks — I should on this plan put about six combs in each hive — The method will then succeed even if 1 bees are compelled to rear a new queen from 1 egg — but they ought by all means to be furnished with a queen ready mature — if they did be supplied with fertile one to meet 1 loss — This system looks not to obtaining in any season when it is practicable 1 largest amount of honey but the largest number of vigorous swarms — The increase of colonies by natural swarming so slow and uncertain — that if there did be a large demand for bees it did not in this way be supplied — I think that on this plan I could easily multiply colonies four or five fold in seasons and locations ordinary favorable — * If when we are pursuing this plan of multiplying colonies 1 bees can gather enough to replace 1 combs taken from them, it will be best not to feed as the deep space honey they have 1 more room will there be for brood and of course 1 more rapid will be 1 increase of 1 bees — but then it will be necessary to feed in 1 Fall unless 1 ~~bees~~ fore natural supplies from buckwheat &c are very abundant — By this plan the ~~very~~ destruction of colonies combs may be found not at all to interfere with 1 strength or numerical of 1 colonies from which they are taken — as soon as 1 natural supplies begin to fail strong colonies may be deprived of many of their bees not only without any loss but with a positive gain — as 1 number of consumers is then diminished when consumption is in excess of production — To form colonies say early in August or late

Page 12 — over

Backsliding, nature, symptoms, and effects of – means of recovery from. (Fullers works Vol. 2. P. 764.)

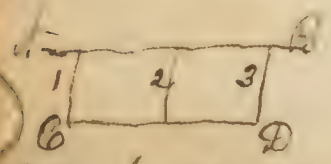
Bees in Slats.





In the use of turned hives everything will depend upon having the combs accurately fastened each to its proper slat – When the slats are long a small cross piece extending about half-way down will answer quite a good purpose.

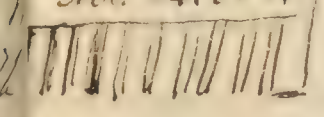
If the slats are made so that a, b are about 3/8 of an inch from the sides of the hive – comb are as wide as c – the whole comb may be taken out without at all disturbing it by cutting – If the artificial has some clean unbroken comb he should fasten it as (1, 2.) if not he should draw a thin line of way near the centre of the bar – If any other bar can be furnished with guide comb it will answer every practical purpose.



AB should be one inch wide 1/4 thick – 1, 2, 3, CD 3/4 inch wide – ~~If AB is not over 12 inches long 2 may be dispensed with~~ – Slat CD about 3/8 of an inch from the bottom bound – By the use of such a compound bar the removal of bees with comb brood or honey can easily be effected – With the ordinary bar the work of removal is always difficult and often impossible – and this is the reason why hives with bars notwithstanding all their theoretical advantages have been so little used – It is very obvious that the box or boxes for the storage of surplus honey may be furnished with these bars – and if bees are constantly removed during the height of the working season the bees will be stimulated to the greatest amount of activity – This ~~will~~ will be a most excellent way of taking the honey where honey in the comb can be retailed to advantage in a market near at hand – The bars in the box for surplus honey should be of the same size with those in the main hive and thus they may be used to great advantage for feeding destitute colonies and ~~used~~ for ~~creating~~ artificial swarms – From these bars in such a upper box comb may be constantly taken to be used as guide comb – and to encourage the bees to begin the former in small boxes, tumblers &c – The use of this bar will I am persuaded give a new impetus to the easy and profitable management of bees – and render the making of artificial colonies an easy operation. By the

found Bees in metalle Frames. (See Oct 31) for Open Hive

The great ease with which the bees with their combs may be removed at command are the whole proceedings of the bees is obtained which is truly wonderful – If a hive is infested with the larvæ of the bee moth all the combs may be examined and cleansed in a short time. To one unaccustomed to the scientific management of bees it did appear to be a very formidable undertaking to remove a bee with its comb full of bees – The timid and inexperienced may wear a bee-dress or resort to a little smoke – but this is generally quite unnecessary as the bees seem to be alarmed by the sudden intrusion of light from above and by their unexpected removal from their hive – and usually begin to gorge themselves with honey – the ~~work of~~ removing the Queen by means of these bars is very easily accomplished – and this and all other operations may be performed without injury to a single bee – thus saving the trouble from constant irritation and keeping the bees always peaceable – It is obvious that the Metalle Frames may be adapted to almost any hive – and that they will be of the greatest practical benefit – By their use with the second way I commend above hive did have the combs all surrounded by a stratum of air and will be thus protected to a good degree from extremes of weather –



The Compound bars or metalle frames may be properly suspended and yet the outside cover be metalle with proper plates &c so as to show the frames without any cover – Such an arrangement did be curious and might perhaps be attended with some practical results – The moth in such a hive did stand but little chance – The tumbler bees might pass in freely and of the cover – and the surplus honey might all be taken away at once – A very cheap hive on this plan might be made – it would not, however, be easy to replace the outside cover without killing some of the bees –

Nov. 25th – Combs or pins put in the corners will avoid killing the bees – this props up the hive all around. Strips which will not cut to keep warm may be put close three sides – Moth Traps and chamber below the hive – by Green Board – Tumbler – Board way may all be used in this way. If G. B. is adopted with the hive may be made very cheap – Such a hive will give us the opportunity to see a hive in which all the changes may be investigated and with how many difficulties and attend the Metalle Hive – The cover being about 3/8 of an inch above the bees – over the second way – at top over this may come the tumblers, boxes, &c or any common metalle frames for surplus honey – Such a hive did give the bees far more protection from extremes of heat and cold – ~~and~~ as the combs did not be attached to the sides of the hive – and did protect them against moisture and mold –

Bee - In windy places a comey piece may be formed by a piece of cotton (which will much facilitate the bees in ingressing).

Beginner - Let a beginner commence with only a few swarms - so that his apiary may enlarge with his experience - He will be apt to succeed best - by sending one or two new hives to some one keeping bees to have good, early swarms placed in them - They should be brought back the same day on which they are hived and at once placed where they are to stand for the season - The care and observation of these the first season will gradually accustom & learn to a habit of a bee-e that by a next season he will be prepared to perform all a necessary operations - If he buys old stocks he will be very apt to get fleas and - and he may be called upon for operations in advance of his knowledge and courage - (describe a beginner your theme all a various operations of a season -)

early Breeding. Upon this depends success in all the Northern and Middle States – If the bees do not breed early they are not prepared to take advantage of the blossoming of the fruit trees &c If they swarm at all they swarm late – and the new colony often fails – The hives have much to do with early breeding – If by want of protection against the cold or any other cause many bees are lost in the winter there will be too few bees to breed early – This the reason why so little realized from bees – If a hive be thin of bees in Fall it cannot be expected to breed early – Hence the importance of having all hives well stocked with bees in the Fall – This ought often to be secured by union – If the hives are too much exposed ~~to air~~ or too much air is admitted in chilly weather young brood may perish and this will prevent early breeding – and of course insure early swarming – When chilled young brood perishes like eggs left too long by the hen –

Bee Bread – Young swarms are often quite deficient in this article – and are not able to breed early as fast as they otherwise would – Dzierzon speaks of his stores being in rye flour from the millers in pellets – If a substitute can be found it will be of the greatest advantage – Sure combs contain bee bread for spring use.

Cleveland March 1862 –

Breed of bees, how to improve the – The honey can get but little from the red clover – It superabounds in honey – they must get it – Why were they not made to get it from it? Why might not bees be endowed with a proboscis to reach into the tube – the nectaries they might for this – Bees probably have not made from deficiency for our fruit – bees made for clean fruit (2) might have had longer tongues – only a little longer needed. Then in a state of nature if it should be the case of swarming capacity they would have died from our forests – They have not proboscis for the bee to get into the red clover until we had the control of the country we now have – Has not the time come when we can improve race of bees to get honey from this plant? Have not an effort in that direction be in the take of the Linn[illegible] society?

Bees-ex Named - April 20th - 1852 - By 1/4 inch from sides of hive - this will allow bees a free passage - When there are 12 bars in the main hive there ought to be only 9 or 10 in the upper box -

See Be -/

As an object to be duly aimed at - to do away from the Italian bees, that they were forage actually upon the red clover this may be done if we can get more size and strength in this bee or if we can obtain a larger species - Prof. G. S. Parker of Boston has proposed to bring Italian bees upon one of the islands of the Pacific where there are no bees, and to send from this bee to the main with his people - If this be done, - I think, we may safely and so far as we see that be, the best plan we can pursue we may in one or two years or a few years get what we look for - it is of course that the size & the habits of animals is much more easily controlled by meeting them in their parts, we have therefore reason to look at the experiment - since friday we find that the red clover blossom did not produce like the other red I have conclude that it seems not to be so good to induce bees to the red and cannot be made to supersede it -/

Sep. 11th - 1852 -

i B

Brick Hives - Let there be a platform with cellar space under it and holes communicating with it - Let the hives be built up on this - brick neatly pointed - if thought best they may be made double with dead air space between - top frame for rabbits may be bedded down on the upper surface of the bricks in mortar - the cover to the hive may rest upon the same surface - A range of such hives might be built with out much expense - they might be warm in winter and cool in summer - Did not a patent be taken out for such a mode of construction?

Bolinghoke, His Sophistical reasoning ably exposed. (Burke. Vin. Nat. Soc.)
Body, neglect of must be detrimental to spiritual interest of the soul.
See some valuable thoughts upon this subject (Withington Lean Rad. P. 19.)

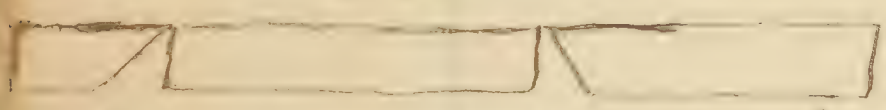
Bee Books—

A very small manual of but little practical use—
A totally full account of habit and mode of increase of bee indispensable to any successful management in improved hives—such a manual ought to made interesting in order to secure a receptive enthusiasm—A book will in a few hours convey knowledge that has only been obtained by effort of able men for many centuries—

(Brood)— If hives in which there is a fertile Queen have combs filled with maturing brood taken away—and the place supplied with empty larva combs or large quantity of brood may these be secured for strengthening other hives—

April 20. 1860 — Make the stand a part of the bottom board—not nailed on but two cross pieces underneath—one by 7 inches part 4—these pieces might be extended with a rabbet to front and rear—

See B.B.—next page—



Open and two B.B. in place—
This B.B. can be opened and shut to clean, remove bees and honey bees—bottom board nicely fitted good to get bees into hive—better thus—

May 12th 1861—
If the hive is to stand in open air some pieces of old oilcloth may be put on B.B.—so that when it is shut the cracks are all shut—If in cellar, duck cloth or cleanup—cracks are needed—so put one piece of cotton cloth on the B.B. of cellar—In cellar the B.B. may be left down—no danger where there is [illegible] air—the left the bees heed the letter—

May 19th 1858 –

Bottom Board – How to clean it o cold weather – See Bo – B

Breed – When quite cold weather follows swarming I hard are apt to receive a fatal chill – hives must be well protected – Note Cultivator Vol 1847 –

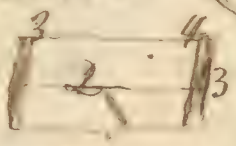
Diseased herd – extensive injury from – vide Cultivator 1847 – I grieve can give no remedy for "foul hood" –

Warmth of Sun – Did not taking off covers and exposing bees in my hives to the sun in pleasant spring days – and in early breeding? The heat did no harm to covers as they are kept from sides – (I suppose not when on side covers!) The hives might be closed when full warmth to retain it – and admission of air kept to small – I believe in this plan – heat has a powerful effect in developing insect life – judicious admission of it, not too early in season, must be of advantage – A well protected hive – in ordinary seasons does not feel the early warmth so soon as a thin hive – when changes are sudden and severe – this an advantage – but is it not sometimes a cause of late breeding – would not my plan secure all advantages with none of the disadvantages of either?

Box – Made out of square to let the Bottom board slant and save bees –

Bred capping of – May 19th I found that the bees when raising the temperature – had minute holes – do they not assume to let in air to young – it hives them – does not exclude air –

April 1. 1851

Bottom board – A deep B.B. may be made as follows (Nova Plan adopted by me in 1850) Nail a board wide front thickness of hive and further – also wide back thickness to hive & further out 1" for rear alighting board use plain for rabbet & stop – let these pieces be beveled on their edges from the bottom – Set B.B. be 2 longer and wider – 1, 3, clamped be 2/15" lighter than the inner.  Set dimensions of dimensions of hive – Set 3, 4 be battens (made of pine plane) to hinge B.B. so that it just comes up to level of sides of hive. These battens are under front part of the box by screws or screws to hold B.B. up to its place – These battens may be so that one side slide up enough – when raised B.B. drops down 1/2" to give air – See 150 – further page.

Buckwheat It seems now to be very generally admitted among scientific agriculturists that this is one of the most profitable crops - and that it is not as has been supposed such an exhausting crop - Although the honey is not of the finest quality for table use - still it is often gathered in such large quantities as to be of incalculable advantage to the bees - Late seasons which without this would not have gathered enough to winter them - will often fill their hives in a fortnight if the weather is favorable - Unfortunately in some seasons from drought or other causes it will be almost worthless for the bees - Hives which admit of easy transportation may be carried where the bees can have access to buckwheat and thus flourish - when if they remained at home they might perish unless fed - Every Apiarian should do all in his power to encourage the cultivation of buckwheat.

May 19th - 1868 -

Bottom Board - How to clean in cold weather - Have felt increasingly the importance of being able to clean bottom board of dead bees in the Spring - without opening hives - This requires good weather - a slow operation - in a large apiary must have [illegible] may stack the hives - Beside chaff B.B. - as used in my first patent [illegible] - too expensive - too difficult to make so tight as not to [illegible] - offered to hospital bees in bee East week devised a plan which meets all requirements - Share B.B. as in present style of hive - in my own apiary with [illegible] - on rabbets lay for inside ch. [illegible] 1/2" [illegible] between the [illegible] and wall to rain [illegible] up 1/2" [illegible] B.B. - Inside of ventilator [illegible] working up - close up against bottom of frames so that bees can easily keep up and down - a simple roller or handle might be pushed under frames - so as to be easily removed - By closing in if desirable remaining back ventilator admit bees access to get to B.B. - How smoke to keep bees up - and with stick [illegible] remove in a few moments [illegible] dead bees - be if hive doubled - have back dooling in two pieces so that lower piece (about as wide as ventilator) can be easily taken out - leave back slatted over glass inclined in back - Hive Bees at back ventilator so that they will enter more freely and will not slip off Porter - June 17th - The dooling back in two pieces - [illegible] on a strong sheet - two wooden nails or pins will hold it in place - Stops 7/8 x 1" resting on the pieces against which front and rear inside dooling pieces are nailed - will stay in place - and form rest - the supports to raise up the frames for winter - a cornice - [illegible]

Building up feeble colonies – If I have a fertile Queen I can give the small colony a frame containing motherless – when hatched refed – the Queen has comb to lay in – and bees to take care of her eggs – in a few days a powerful Queen may in this way be made –

There now just between by which bees get up and down near to the hive by going up and out – and which will not let any intruder in the closing cattle hive. –

Charity xian. A hearty belief in x man's entire natural depravity shown to be it indispensable foundn. (Wilberforce xian Rel. P. 134. 6)

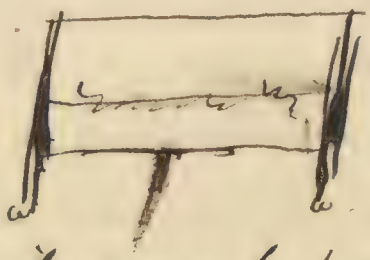
Canticles argument for x divine author. of. (Rev. Edwards Works Vol. 9. P. 342. 5)

Casts — or after swarms are generally managed almost with less — They often weaken greatly the stocks from wh. they issue and unless quite early seldom gather enough to live on winter — If honey is x object with the Apiarian casting shd not be allowed — About x time that casts may be expected remove all x sealed Queen cells except one — (They may be put under tumbler-gauze wire allowing x heat of x hive to rise to them and thus as they hatch they are on hand for use) If they issue hive them and keep them until the Queens begin to lay — they may then towards dusk be returned to x hive fr. wh. they came — and their Queens used to replace the supernumerary Queens — The new comb will be of x greatest possible use for tumblers, stalpend swarms &c If x rapid increase of colonies is x main object — Casting shd not be discouraged — The casts shd be strengthened unless large and very early — by putting them into hives furnished with comb honey and brood —

Changing bees f. one hive to another - easily effected in hives with bars after my plan - Remove 1 hive f. wh. they are to be taken a little distance. Put a new hive in its place on a sheet as in hiving a new swarm - Take out 1 comb one by one till 1 bees to fill themselves - gently shake or brush them off on to 1 sheet - If their queen is not taken f. them they will readily ascend into 1 new hive - If some comb with honey, eggs and brood be put into 1 new hive - they will enter and stay in that a Queen - wh they may be removed by driving - ~~and~~

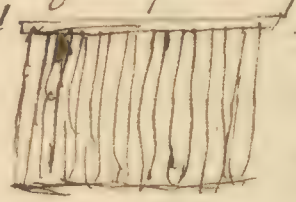
Changing of place - Caution caution! Remove not so as to entangle a

Jany 14th 1858 - Single Hive -



Heart. back and ends inch - prices on ends fr rabbets inch - with dadled -

outside prices as in other hives nailed so as to point raw edge and to give rebbet fr cover - These bars may be put on the double protector - but little rain will get in - no matter in summer - in winter may have a board laid so as to form a roof and shed all rain - middle strip higher so as to shed bees each way - w. w. need not come out quite so far as B. B - and they will receive the board in winter to keep them in place - Cover - Cobet lighting Board - March 25th 1868 - The bee & phosphorus board in front of hive use cols -



- Cut them to length - hold them together by thin slats with nails - 1, 1. might be tacked to edge of piazza floor - not use thin metal better then a board - 28th - Let two nails be fastened in outside edge of piazza floor - between which cols to be confined - their lower edges to rest on a board - with strip nailed - one to be confined between nails - Might they not easily be held together by wire? Perhaps made of wire may simple - too much work -

(Nov. 28. 1851)

Cheap Hive. Made frames cheaply supported – Shape like figure – Even angle box – Divides to separate spaces a, a. from the rest of hive in winter. Honey to be taken in 1 box – fed in 2 in a, a – in summer – Such a hive may have bottles or boxes on top – It may be made cheap – and in general appearance a perfect bee hive – it bottle smoker keeps 1 bee peaceable – drives them from 1 comb to be taken away – or into another hive. The combs might then in 1 comes of 1 moth can easily destroyed – Hive examined, cleaned & at all times with 1 perfect ease – Hive with a moveable comb, and bees might in a few minutes be taken to pieces – put together again and all manner of experiments performed upon bees & it and the result of such a hive at Agricultural Exhibition both the bees & an experienced operator is to work to give 1 country – (Nov. 27) If one side of 1 hive comb had moveable 1 comb might be cut off – without so much risque of injuring 1 bees – The top might be moveable – the bars put in a rabbet – and 1 hive thus constructed will be cheap and have many advantages –

Am. Moveable bars – or frames 1 very foundation of all easy management –

If there were parts at A, B, C, D the sides AB, CD may be doubled – filled in with saw dust or some good non-conductor – dividers may be put in in winter – 1 entrance may be made by an alighting board under 1 bottom board which will stand on legs – 1 surplus honey might be taken from 1 ends of 1 main hives on bars – or from boxes on top –

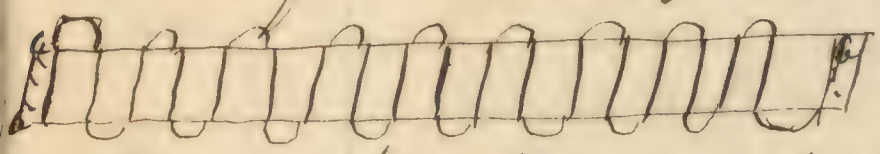
6 March 28th 1852 – Farmers hive – sides inch and a half – front and back to inch – pieces put in for dead air space – or bran, charcoal &c – Box halved – or nailed – or dovetailed – holes in moveable board may be made by a common bit or augur – no rim – corner bit of tin, and &c – Boards may be unplaned and whitewashed – will have slips to prevent leaking – Bottom board ought to be painted – Or made of tin – upper front 3/4 inch or inch and sides rebated – or bended – 29th – Front and back – for say 3 hives nailed double in one piece – then cut – after box nailed sides may be doubled – corner pieces nailed on sides before box nailed – guide in putting together – hive may be made with plane, saw – hammer, nails –

Bottle size of the D a

cleaning - hive - In 1 winter a piece of thin wire-gauze - paper &c. may be kept on 1 bottom board - so as to receive 1 dead bee - &c. it can at any time be easily drawn out - or a small scraper can be put in to clean all out. -

June 8th 1852 - Cheap hive - Front and back - 1 1/2 stuff - sides inch - upper box - front and back inch - sides 1/2 - Tumble board - wire screen set on and upper box set on - bottom board nailed to the lower box - from end to end - this with the frames not including lid form a very well protected hive (Jan 16th 1853) Stuff on post so as to have convenient, and not -

July 2nd 1852 - Have cellar three feet deep - two above ground - one below or 1 1/2 above - same below - may be built of brick with dead air space to exclude frost - Hives may be built say 10 or 12 in a compound hive -



a, a - entrance to cellar - a circulation through in summer - shut to exclude frost in winter - small chimney to screen against smothering in winter from snow blocking up entrance outside or ends double - hives made of two inch plank - partitions inch stuff - May be easily transferred at any time to other hives - metcalf's idea of wire gauze wire set against partitions bees will not be able to quarrel with each other. then the whole might be regarded as a United State - July 3rd 1852 - Double range -

1	2	3	4	5	6
7	8	9	10	11	12

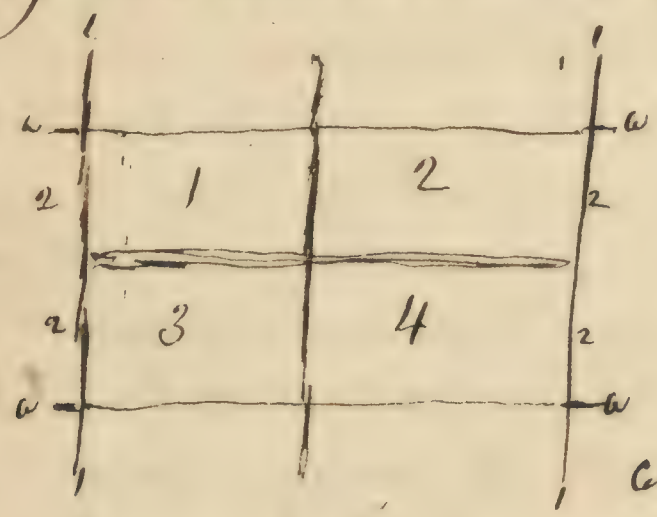
Have 12 in a double range - Traps may be placed cheaply so as to guide bees to their own hive - Top part to cover the tumble board need have no divisions - Canvas water proof may be used to roll over this - or a board cover to lift on and off - In this way cheapness and protection both may be combined -

Clipping wings of Queens – Let the right pair of wings be clipped as soon as 1st day Queen begin to lay – 2nd year part of the other pair – 3rd year the whole – age of Queen then known easily – when it is intention to ascertain how long they will live – 1st year clip anterior one of right pair – 2nd year posterior – 3rd year – half of anterior of left pair – 4th year half of posterior 5th year whole of anterior of left pair – 6th whole of posterior – this might be clipping before cutting be carried through eight years –

52

June 2nd – Clipping of wings will not prevent Queens from leaving hives in hives which do not suit them – yesterday one left – also again to day the same one – Saw in a passing perfumed the garden he easily found – and been made to go back when put near them – Men spoke of seeing if they were seen with clipped wings –

June 14th 1853 / Four hives in one



Frames doubled –

1, 1, 1, 1 are nailed 7/8 from end of B.B – so that outside pieces may be nailed – on to come not quite up – so to give protection – and support corner – Roof of corn to start both ways – corn to slant either way and rest on roof of lapping board –

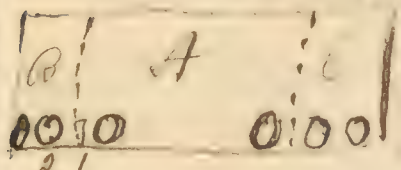
Such hives not to be moved about – corned space for them better than single hives – They might have windows on 2, 2, 2, 2 – Such hives on their protection would defy weather – would be most admirable as non-swarming hives together –

a, a, a, a need not project – nail outside on to edge of B.B – save the zinc edge for rain

June 17th – A Quadruple hive will be too clumsy – two men cannot handle it – and on the whole it does not save so much – facing both ways has some objections – I incline therefore, to the single and double hives – (18th) A double hive cannot be moved by one person – and if two necessary they can as well handle a triple hive – There would be very great economy in time and material in constructing such a hive – also in protection – Perhaps a triple hive is as far as it is desirable to go –

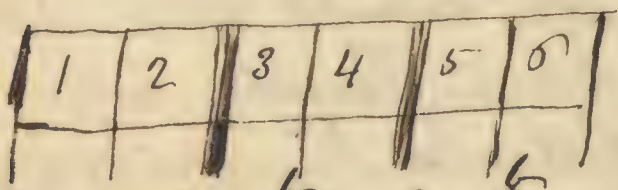
March 30. 52

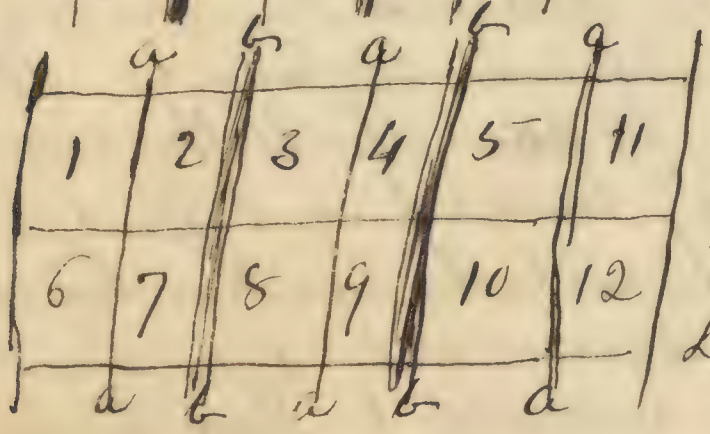
Collaterals – It remains to be proved by me whether the greatest amount of place honey can be obtained by adding or in collaterals. Heat of the hive must get in adding – and for fall – small enclosed collaterals, if an admitter from the top to be placed under center – or main apartment B. C – collaterals. If holes admitting bees into collaterals are as in (A) so that the Queen would have to pass over the cool draught – she will not be likely to leave the center part of the hive –



bees for side apartments – ought to be turned further – if combs will be slightly inclined – A hive on this plan might contain 18 bees – 12 in center – 3 on each side – will yield the most honey of any plan – B and C filled in winter with stores below shallow storing box – Queen bees in three parts – only hole for feeder – Bees might be put in side apartments – Size of each side apartment 8 1/2 inches

(Jan. 14th 1853 –) Cheap Compound Hives – Same as double farmers hives – Front and back inch – pieces for rabbets 7/8 –





Front and back inch board – ends same – middle half inch – pieces for rabbets 7/8 – nailed on – boxes to cover four hives – a, a partitions half inch – project up one inch – middle one the same projection – bb – 2 inches – ends 2 inches – boxes – slope of roof each way – roof on ends and on ~~one~~ – bb – cover on tacked roof of lighting board – elevate eight inches long – blocks for middle ones – [ ] – ... Tunnel boards have little heads driven into them so as not to rub too close against middle partition – bb – ought to be in one piece – also – a – a – centers dummies let in – also a, a – Mr. Langstroth –

Care for bees See Ca-

Cow Cow for wintering of bees See Ca-
alighting board - See Ca-

Congregationalism objections to as a system of church gov.t ingeniously stated (Spir. Des. P. 290. et in alios loc.)

Comb-honey - Reasons for questioning the statement that in a few years it becomes unsuitable for breeding - Am acquainted with a Mr Fox of Germantown Pa. who has a hive now (May 1881) in its 16 year - Has always swarmed - is a strong and prosperous colony bees no smaller to my eye than others. Hive stand almost rotted away -
Any plan for renewing the comb which consists in furnishing two separate apartments for the Bees liable to entire failure - The top not ordinarily occupied almost sure to be stored with combs of a size unsuitable for breeding. Bees rule a good one, never to disturb the original habitation of the swarm so long as they are prospering - If sure that the comb is too old it may be cut out part at a time - or at a suitable season the whole swarm may be driven into another hive and their board restored to them to be hatched. Query - Is not the lining made by the young bees so exceedingly fine that a very large number of them would not readily determine the size of the cells? Should be kept in a dark - away from moth - ought to be hung up - by a thread. Every piece of good comb should be most carefully saved.

Preserving -

Comb Foundations — See Ea —

Cost of — Twenty lbs of honey thought to be required to make 1 lb of wax —

One pound of wax will store say 25 to 30 lbs of honey — 1 lb of honey makes wax to store 1¼ to 1½ lb —

Brood Comb — Great advantage from having the combs of a hive regular and as many of them as possible of suitable size for rearing workers — Dzierzon says that Queens can lay drone eggs or worker at pleasure according to the kind of cells — the less drone comb the better — "Hive with bars will encourage comb building of the most suitable kind — all containing drone or nearly size may be removed — I seriously doubt the ability of Queen to determine them at pleasure —

Comb-preserving. How wd it answer to dip in an acid solution (strong saline solution) to preserve against moth — might afterwards be soaked in water.

Comb-making — New comb to put in 1 hives, tumblers &c — of 1 greatest importance Every effort shd be made to obtain it — Bees containing it without hood shd of course be removed to be used for this purpose. If any convenient way can be devised to guard it against 1 bee moth it will be of great importance to 1 cultivation — As it almost always contains eggs or young worms of the moth it will be often examined and 1 worms destroyed before they have seriously injured it or have changed into moths to fill it with their ~~progeny~~ progeny — one pair will breed enough in a few weeks to destroy almost any amount of comb — So desirable is it to have an abundance of new comb — to be able to put a small piece in tumblers or hives — or on the bars of a new hive — that it shd be a regular business in an apiary to have a full supply of new comb — by constantly depriving some colonies of a part of their fresh comb — now if it is necessary to feed them largely to prevent them from being too much weakened by such deprivation — The common system of management makes no provision for securing such comb — it cannot be taken from 1 hives — and yet if honey is taken away in small receptacles — and others put in their place with only a small piece of comb for a beginning 1 bees instead of being discouraged as when large boxes are taken will at once go to work — and with increased diligence — Comb — Comb — plenty of new comb &c.

Mercurial Ointment – Might adapt of particular in a tech. use on
pillow & tumbler stands of – a little certainly of 1
leading elections of vivacity. Bright's Cases of Dis. p. 614

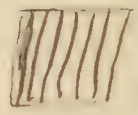
Comfort in Troubled – If there is no cow to put in a tumbler – they might to have a line
of wire drawn but over the center and down a divider – a tumbler being previously warmed
to make it adhere strongly – In my hives, however, with movable frames there need be no
difficulty in always having a supply of new comb on hand in the working season – I have
found that when the comb is simply cemented with the tumbler & bee appear to be most active
in repairing, and attaching it – as though they did not let such an instinct pick perfect without
making it all right – and when once they begin to work if honey is plenty they will seldom
stop until they have filled the frames – Its flat is such a good conductor of heat it is
important to have the tumbler well covered in order to economize as much as possible the
heat necessary for comb building – When the weather is extremely hot the upward outlet
of heat will be of advantage to a bee – but as comb building is most actively carried on in
a night & honey receptacles will seldom be too warm

Comb – fixing in frames – If possible cut it so that it makes a tight
fit – bees will then make all right – this very good for old comb –

April 7th 1812 – Bees on tender brood plain – comm with some open
pieces of feeds –

Apr. 11th 1812 – Left bees make comb in tumblers from cheap food – before it is ready
feed it to colonies that need – then give to strong stock to store with best whole
comb New section – pure honey marked good wax –

Comb – I make of ~~wax~~ gum out heat – if weather is very hot and the hives are not properly protected

Comb – direction of – a strip of tin should be laid on top of frames  with suitable apertures – so that with a brush a member may be waxed at once –

Comb preserving – Have a small cask – spigot – or plug – cover going inside keep comb under water – draw off occasionally and put in fresh water – wash comb to be used in fresh water –
April 24th Have been informed that comb smoked with sulphur will never be attacked by the bee moth – and that it is not disagreable to the bees –
April 28th 1812 – If sulphur plan answers – make a box – ~~wire gauze~~ for comb swarm frames to set in it – in layers – one above the other – Leave it so that sulphur wire frames penetrate it – smoke from time to time only chance of failure that bees may dislike the comb – Bees will not object to the comb – The ability to preserve any piece of comb – one of the great advantages of the Moore Hive system – Any old hive may have its comb smoked to make it suitable for bees –

Comb [illegible] – [illegible] – [illegible] – [illegible] – [illegible]
Jan 14th 1807 [illegible] – [illegible] – [illegible] – [illegible]
[illegible] – [illegible] – [illegible] – [illegible] – [

Cells size of Italian and common —

D (May 10. 1860) I measured a to day some Italian worker comb taken from the original queen in which Mr. Parsons hatched out the Italian bees — Several very careful measurements gave about 19 cells to four inches — the same number of measurements gave 20 of the common or black bee — the bee must therefore be some larger — It pleases to hear our bees in Italian comb —

(May 28th 1861) Fix Sunnen on the four inside sides of cover nails back of each staple — so that cover will not set close on ledge — but leave 1/16" back to prevent bees cross to give more air — if cover is made 1/2" deep 1/16" on each side — a staple may be put in to prevent bees from being crushed —

Corn Cobs for use of bee-keeper

Sept. 7 – 14 Oct. – In my Journal of a last week or two I have

D

[illegible] for the very best corn cobs – After they have

been taken from the stalks of my Bee hives Mr. G. Boeling of the

Pres. Dry Goods Store – [illegible] specially adapted for my purpose

– Let the corn cobs be cut to a uniform length of from 2½

to 3 inches long – Then select them of nearly uniform diameter – for bee use a very

thin frame cut to fit them – allowing half an inch – when one is placed

on top of frame in hive – bottom of frame might be built from 1 to my [illegible]

3/8" to 1/2" – top of frame might be so [illegible] the grooved [illegible]

frame [illegible] – In summer use no [illegible] – [illegible]

[illegible] frames will [illegible] make a cave for them to be sheltered [illegible]

frames – If the frames are very high [illegible] old [illegible] ships – cobs might very

[illegible] the flow of the honey [illegible] cobs [illegible]

[illegible] – [illegible] – Then use [illegible] from

the [illegible] – Short [illegible] cut [illegible] from the top [illegible]

If all the material for long [illegible] this [illegible]

If [illegible] – [illegible] The bees in winter [illegible]

most [illegible] – [illegible] – [illegible] cobs [illegible] very good [illegible]

[illegible] – [illegible] against [illegible] – [illegible] frames

[illegible] – [illegible] – [illegible] – [illegible] – [illegible]

[illegible] – [illegible] – [illegible] – [illegible]

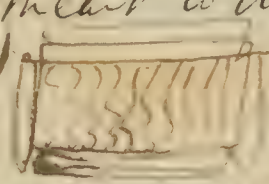
[illegible] – [illegible] – [illegible] – [illegible]

[

Death, beautiful description of before decay — Byron's Giaour —
Depravity total, folly of urging inability from this source to do any thing good, as an objection to the attempt to become religious, ably exposed by Howe. (Blessed. of righteous Chap. XVII.)
Decrees of God, presumptuous discussion of discouraged. (Leighton Vol 2. P. 450. 1.)

Degenerating — or bees running out — This is not uncommon — may it not result from breeding in-and-in the same stock? Might not new stock be obtained from time to time — give them plenty of drone comb and encourage drones — or raise your stock from them —

Deserting hive — bees do but little or nothing in a hive when they mean from the start to desert it — Noticed their refusal to work in an extended d= ny when they meant to desert it.

(See Next page)  To make this large enough to cover the frames — leave [illegible] feet to straighten out [illegible] to the [illegible] of the frame — frames fixed in the hive [illegible] so as to keep the bees off the hive itself — If desired the hive board can be laid on the [illegible] which may [illegible] the bees off the [illegible] — no bees [illegible] and no winter [illegible] — [illegible] — Amos Mitchell [illegible] entering bee in the [illegible] as was made [illegible]

Mr. O. Sprague, of Vulcan, Michigan & Co. [illegible] — [illegible] the best [illegible] for wintering bees — He has [illegible] — [illegible] — I think that [illegible] — and [illegible] to winter bees to [illegible] — He will [illegible] white in [illegible] — [illegible] Sent them letter in January — He [illegible] — [illegible] — [illegible] —

Town Cobourg Dec [illegible]

[illegible]

[illegible]

[

remaining the topsail light and least well some time yesterday to fly [illegible]
[illegible] the Pole the closest sector I can only [illegible] [illegible] to me [illegible] [illegible] (just before) of preparing her for winter — I am [illegible]
[illegible] & [illegible] words of [illegible] making the [illegible] [illegible] [illegible]
[illegible] — [illegible] [illegible] [illegible] — the [illegible]
[illegible] is a [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]
in cold [illegible] [illegible] [illegible] — [illegible] [illegible] [illegible] [illegible]
in cold weather — and [illegible] [illegible] [illegible] [illegible] [illegible]
[illegible] the [illegible] [illegible] the cold — [illegible] [illegible] [illegible] [illegible]
[illegible] [illegible] [illegible] [illegible]

of clean straw cut to a proper length on the bottom board covering the bottom of the
straw for fast to keep upon which for the rest of the cold weather the
straw in place! The same might be done upon the sides — In times of cheap
cotton the flowing wide the cots might be cotton too — Come on in the form of batting —
tacked in the shape of old carpets or old clothes might also be used up the sides
keep — and might be tacked to the front and rear also — In short the principle may
be so fully carried out as to secure a hive which will enclose the bees in cozy dry
warm without perfect non conducting substances — and yet allow of a free escape for
moisture — I also propose one or more holes in which the plan might be carried out —
as capacity or profit — Suppose a stock feed any cracker or such as hive? at
each stock may be certainly feed a hive stop it down in one inch of any
hive assignment — a stay stock would probably heat many little of upper hive —

No. 4 Have put some bees into cot hives — Some long nails inside of the outer
legs of frame hold the cots on top of frames in place — The space on each side
side above the side cots easily closed with three cots — These will probably
be no special hurry in crowding the top cots with worker guards — If water is
no special hurry in crowding the top cots with worker guards — In the hive feed
on weakly stocks in cold weather easily provided the cots — In the hive feed
to day I have made pieces of old clothes of spring the front and rear ends of
the hive — I should now prefer to locate my bees in a hive fixed in the ground
keeping them in more equable receptacles — (19th) 30° — Very fast — In a colony (the
only one yet with) the bees are similarly situated to top cots — the very stock
with the bees next to the outside of hives — is most fast — the one inside
[illegible] — I have a cluster of bees below you
[illegible] — Bar the cots or bottom be so rough that bees do not like to
lie or travel upon them? (20th) 28° — very heavy fast — Examined a number of
colonies — Set a bee under the cots on top of frames — some under similar cots —
in some hives none on the outside frames next to the cots — in the strongest some — In one
with colony top bees on both sides next to the cots — In other one with a few of small
spotted ripe over the top bees seemingly crowded to their cots top — In one the
hive bees were not seen on the cots below — This the great fault — Results thus far
very satisfactory — Oct 30 — I find after collecting a hive that the platform is three
feet long (when fine feathers bottom side up — this may be useful to clean
out the hives easily in the spring (hence one ought to called hive) before it is time to
unseal the hives — Oct 31 — I think that it will be an admirable plan to
lay (after giving one or two strong frames) a bed of chaff upon which to place the
cots — This will give a very great additional protection to the cots position
of hives [illegible] — In times of cheap cotton the cots might be [illegible]
[illegible] — The time of cheap cotton the cots might be [illegible]
[illegible] — Nov 1 — Very fast — Examined a number of
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of hives [illegible] — In times of cheap cotton the cots might be [illegible]
[illegible] — The time of cheap cotton the cots might be [illegible]

[illegible] dispensing with the use of combs to hives or cells — the worst [illegible] — while to [illegible] the spirit the dear [illegible] for the bees, it is not easy to keep an eye of them, and on the best [illegible] [illegible] I do — I am at hope will suffer to [illegible] the bees appear [illegible] flow — I do not — but the [illegible] of the bees to the other hives — at [illegible] [illegible] the cells — [illegible] the cells — [illegible] for water — I prefer to hide the sharp central fence, not they need [illegible] the [illegible] combs — therefore each side of the [illegible] — If the central fence are too [illegible] the bees [illegible] and they will often [illegible] to one side — (21st) Have put a layer of chaff under the cells in one [illegible] — it raises the cells so high [illegible] — the cell elevator the [illegible] the bottom [illegible] fence to be — the [illegible] elevator must be higher — there for a few hives [illegible] cells [illegible] — gave a few with only top cells — If the moisture [illegible] into the [illegible] — [illegible] — the [illegible] in my hives [illegible] the [illegible] is not [illegible] to [illegible] of the hives [illegible] [illegible] — There [illegible] — [illegible] — [illegible] — (22nd 30m. 47°) — Great [illegible] — In one called [illegible] only [illegible] with a cap laid over the fence — bees [illegible] the comb [illegible] — In a [illegible] with [illegible] on cells laid on bees [illegible] — [illegible] cells [illegible] [illegible] against the comb near the whole size of the comb — [illegible] cells — they [illegible] [illegible] — By dispensing with winter passage — [illegible] with [illegible] fence [illegible] the cells — [illegible] the [illegible] — (24th) 80 feet — bees on the underside of cells — [illegible] [illegible] — Bees [illegible] — 25th 30 — Very [illegible] — [illegible] called [illegible] away from sides — In the tier with the cells — [illegible] [illegible] the used large quantity of [illegible] the comb — [illegible] [illegible] — It is very evident that a comb has a great influence in the [illegible] life — [illegible] [illegible] — the [illegible] which [illegible] to be [illegible] in the [illegible] [illegible] — 26th — long [illegible] put into the [illegible] [illegible] cells from slipping off [illegible] — [illegible] [illegible] — [illegible] [illegible] — [illegible] [illegible] — [illegible] [illegible] — 27th — [illegible] [illegible] — [illegible] — [illegible] —

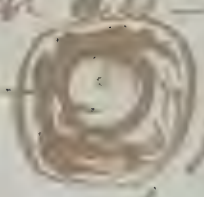
[illegible] canal with [illegible] any [illegible] material — Here [illegible] to [illegible] all the [illegible] through — I find that when cels are laid [illegible] to leave this [illegible] of see the [illegible] difficult to come into it — [illegible] the cellar — [illegible] 3, 3, [illegible] two [illegible] — 1, the [illegible] left centrally [illegible] — 2, [illegible] to the other cels — so as to form a circular way [illegible] — [illegible] the cels [illegible] [illegible] the [illegible] get a warm place for feeding bees — [illegible] obscuritt for [illegible] the [illegible] — [illegible] a [illegible] [illegible] directly [illegible] the cels — or better stand for a [illegible] [illegible] [illegible]

December 29th 1865 — The experience of last winter with the cobs was not such as to induce me this season to use any on the sides or bottom of the hives. It is now seems to me that long slots or openings are more important to safe wintering than the space of the chamber of the hive might at some distance. Such place as this answer well — make a square box about eight inches in depth of frames with cover of cobs — Hence they over should lay of cover cobs and all would great — Bees might then lay up in the stalls of honey in this space — but of course the top surface of the frames — such that every comb has the long winter slots passages — They also fill some hive with honey boards on, the long honey long slots ended with woolen or cotton cloth.

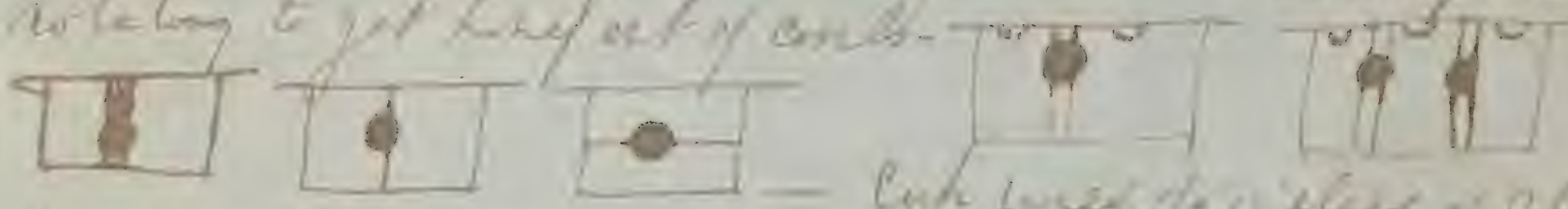
December 8th — Should try putting cobs in a shallow box with bottom slots to hold them (See Da) — Make sides of box to rest on gutters of rabbets — ~~ends~~ 1/4" thick — ends not to side by 5/8" 1/2" stuff — 4 strips 1/2"×1/8" = These to be nailed on ends will leave 1/4" between them and tops of frames — so as slots to leave 3/8" shallow chamber — For this cob box — put two rows of cobs as on tops of frames — and then over them another set — over them might be put a piece of old woolen garment — This would keep the bees warm and yet not damp — This cob cover may be lifted off and on without crushing bees — makes it easy to examine them at any time — and may then be kept on until bees need supers — or the weather is warm — Then these cob covers may be stacked up in some dry place letting no more room than the cobs and bees are ready for use another season — Small strips may be nailed on the outside of this box all around — making a ledge which will keep all tight — and no air or heat escape except through cobs — Dec. 30 — To day put a sample of cobs in the hives — two layers of cobs — first layer double cobs of good length — which I kept the 1st in place — second layer they be cut in 2 in regular sizes from first to fit this hive — by different sizes — some cobs by cutting out pieces — fitted in fitted closely so as to prevent escape of heat and keep the bees out — Shape the cobs — open pieces to larger cobs — one cut lengths of the one — be packed with cotton or fibres — No doubt this will keep bees warm — and if cobs absorb the moisture, dry — Bees could be easily fed a little fluid with water for a couple of months — If remember cobs or bees or better than pieces of unbolted wheat with proper care — only bees have out early to get — 13th 20° — The hives with cobs over seemed thirst — [illegible] — [illegible] on the top of frames — Thermometer next to cobs and outside — 44° — [illegible] 32° — [illegible] 20° — Difference thus far as both hives for cob-cover — It is quite easy to examine the bees in a cob cover — not they come cob sheets clamped slightly rising on side of cover — quite important to keep the cover tight — 14th 30° — All well — Took a sample of [illegible] — [illegible] — Put under paper or woolen cloth to keep from 20 to 30 degrees higher in [illegible] — 15th 1° — Year — Hives called with paper or cloth — [illegible] — [illegible] — [illegible] more than 20 degrees above the range in the open air — [illegible] — Found this at 8 M — Put in the top cover of hives called [illegible] — [illegible] — [illegible] — Day to day [illegible] — [illegible] — [illegible] —

Jan 26th 1866 / Born Cob Miller Pattison — Mr Jos Hamlin in Cobb Cob & Clover cobs

Seems to me an admirable plan for making caps fitting under passage of cob cob — let the flat lower board be made not too large

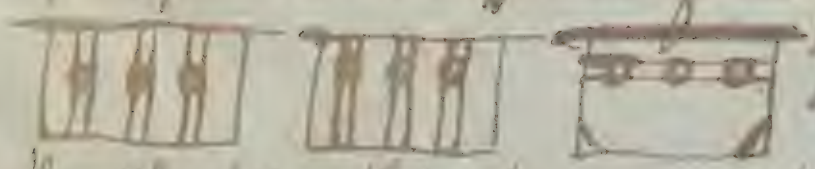


so as to leave a good space on the under passage so that the bees may not have to come in near the hole to be used to go in — Boy saw cleats in the sides of them they can be made to run up and down on strips of tin for guides — two screws could be used — one may be left at any height — bee running through the cap comes out of honey board into under passage and makes it impossible to take them off — some large glass bees to hide the comb through which the bees may be seen working are no larger to get honey out of combs —



Comb would be a class of cob too expensive — wood might be fixed in some place — cloth be best cob last — These under cob boards be kept 5/8th to 1 in to keep their faces so as not to interfere with slicing off the cake of cells to drain out honey — the front face was fixed down to be made of left the depth of comb in that being filled in by bees —

Pins or small nails might answer by small bolts and fastening cob in cob passage then bees could not escape and must come to slight — To run from upright to upright should last — if only it comes stiffen the frames — or and with wire easily managed —



This last seems to me best — should large or smaller to fit the passage —

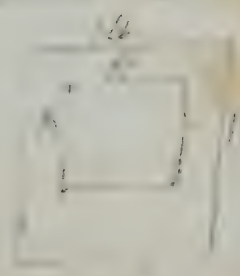
Plan 11th Notice that when the center passage is left low towards outside combs are caught outside of main cleats and fixed — this shows need of the three passages that I have proposed — if cap be put on the top of the frames to hang cob and upset the two back first fitting up with the cob —

Winter Linings for Muscle Cont Hives — Oct. 19th 1861 —

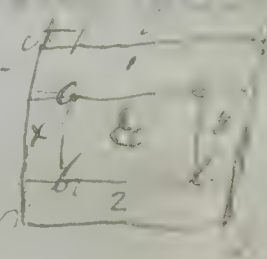
Although I have found so much pleasure to consist, as I do, in the material for lining hives for winter — other materials can be used to very great advantage, & would answer for instance — straw — cotton — Straw lined hives — I object entirely to a permanent lining of straw — Before up to much room which is needed in summer — Difficult to arrange so as not to interfere with ease removal of frames — value impaired by being in time propolized — a habit for moth to lurk & be offered meals for winter life & those of these objections — are as basis which in the Muscle are carried out & employed for winter lining & yet not very great — Get good clear straw — cut to a proper length for room — bind — . . . Drive nail at the bottom board — lay down a good layer of straw . . . fasten it down with tape or needle & sewing twine upon heads of the nails! Lay the hive down on its side — and fasten straw on the sides in the same way. If desirable the same may be done with the front & rear — making the lining not so thick — leaving tape ends to be tied together — The same arrangement for under side of honey board and let stay on till close upon the time of the bees — The entrance to be made high so as to clear straw — At the other end of hive, the upper bottom of frames might almost lack it and not be injured — Hope to see life in all the hives that are the most to cluster low down — Hope to see life some hives on this plan commence to die with low temperature & lay this winter, with the top board — (20th) I need one hive — If the cow calves I can obtain this plan admirable in those parts of Europe where cols cannot be obtained!!

Dec 28th 1866 Note drawings & for house —
Cannot suit little wooden mats to be made coarser, more for winter
use for tea-houses — So that the point of wintering here in Yokohama
should be one of great and serious importance. Not contributed refusing to
be a great interest — Suppose one thing of this kind thought of —
Say four inch square bamboo lattice, four cents — Let the two end outside
these have or under garnitte tacked to them — Keep off from bottom with pieces
under pieces, so that tea could easily pass and repass. Would not keep
more comfortably, should not tea or soil or needle cold rather
within than under walls instead of lying on outside cents & scratches
and die? Keep tea fall comfy within under walls — and position outside
outside of them — Would not this be improved, letting tea or other
hair, ~~either~~ or lining of hair or other sides for tea, which keep
sides and the objection of the lining to make hair tender and contracting
this can at once be found out — Making the hair fight it's way
will make and hard and the skin will be delicate between tea
cuticle of tea, requires of time — (31st) 10 — for one month of
tea houses — Considered what seems to be an excellent place for wintering tea
in the open air — Get wooden mats — the pieces of carpet — Letter State Prisoners
winter pattern sent in the Sonora Fishing Company make — cut out frames
which often stuck together were made a sort which can be found into an
entirely place — pulled to pieces and see — corners made with thin wood strips square —
not coming to bottom of the so cents with the fine with removing cleaning floor. Not
coming up high enough to come on top of frames after first lifting step in order
to keep frames higher from bottom board of house — Mat ought to be wide
enough to include not one eight foot — Letter slide down if food enough
for today or eight for day perhaps — Top shall be covered in fully thick mat
to prevent too much heat effect — bottom board mat lashed to this slide to be
able to push in and take out with greater ease — Front of mat might open down
to bottom board — Back of mat come down to step to be laid up to cut
bottom board mat slip in and out — The tea by this arrangement is
lodged within wooden walls — strawbe are then covering with this —
Suppose first cost of this arrangement to be from $2 to five — other for
interest and depreciation 1872 to all 25 cent to five — $1.50 not an unfairly
cost for a tea house for five thousand to a dollar — what is this expense with
the benefit? Pain must be made to contain will open air as use in summer
and heat or in stress time — Too many minutes in looking then

5N



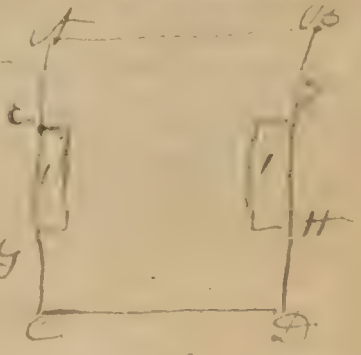
[illegible] carefully [illegible]
not [illegible] it should have old carpet & straw not be — This [illegible]
each warm — As cold stitches blow down below they naturally retreat [illegible]
[illegible] against which to push up — and one which will [illegible]
[illegible] above them — This very different from allowing to keep whole [illegible]
[illegible] would hold only 90 cubic inches — now only 30 — If the
bees flies will be found to turn their winter clusters [illegible]
[illegible] the shall cold box — Have been once filled up only to
[illegible]
may be made [illegible] "warm cold coast" = "get" is [illegible]
a colony in a 13 frame hive which had no winter [illegible] — [illegible]
no bees clustered up in it — Thought plan a failure — Used one with cds to rest
on top of frames in a 10 frame hive — Saw no particular benefit — About three weeks
ago saw bees clustered well in the 1st one — Winter has been steady cold — unusual
for this latitude — No extreme cold but about 6 below zero — but the average
temperature very low — After [illegible] bees have clustered up in the colder day
in first cold box — made the fall bees cluster in 2nd — and they readily accepted
it — Many experiments have led me to believe that bees decline swarming
down to cluster up against — They can thus prevent any current of air from
[illegible]
[illegible]



elevated — straw, old carpet &c may be put over — or thus —
about 3 inches deep — to hold two depths of cds kept up
from tops of frames a c, b d, cap strips about 6 inches
x y filled with cds 3/8th from tops of frames — E inside
about 8" inches square — cds to be kept 3/8th above frames or higher if it
[illegible] to be made on the warm cold coast plan as the
[illegible] to be filled with warm rags or straw crowded in — and so might 1, 2, — Thus
set in fresh each season — E should be made so warm that moisture could
[illegible] it — Inside box to be nailed and to have strips for cds to rest on [illegible]
[illegible] in place — 1, 2, into take small cds — Once tried [illegible] as long as the
[illegible] 3 feet 6 1/2" [illegible]
[illegible] "to hold liquid food" — here place for water sweetened to oil in cases breaking [illegible]
[illegible] easy also to put candy in E — A patent on this might not pay — and yet if easy to make and [illegible]
[illegible] thing — Reach this or the bees are alone — [illegible] to [illegible]

Winter Arrangement Continued—

Feb 10th 1868— Have to day concluded to discard the cold
the arrangement will be too complicated — Straw tied into bundles
cut to suitable length so as to crowd into the space in the second
box dispense with the rabbet strips — Make the inside box 1/2 inch
the total of the [illegible] box [illegible] in the inside box [illegible]
[illegible] dams — These bundles when tied to be cut with
[illegible] to suitable length [illegible]
[illegible] — and as soon as cold weather comes on will be all right — D E F G Have
found the sectional box might be dispensed with and the straw bundles used in
[illegible] of the hive! The only thing extra then is the straw bundles — the worst was
the difficulty of securing the straw bundles against rats and mice when not in use
the bright warm days the lids may be taken off to thoroughly air and dry
bundles — might be filled into the upper sections or supplies they cover turning the
inside down and when forget setting [illegible]
[illegible] — the small central bundles —



[illegible] — they cross — Make bundles to fill
[illegible] E F — crowded down so as to rest on tops of frames
[illegible] G H C D — about four bundles needed for third — Have
have two small bundles — or two strips of wood a foot long cut —
[illegible] — If the thickness you want need to get the proper depth for your sections
[illegible] should crowd in tight — might in some cases be better to dispense
[illegible] the bundles in E F G H just high enough for some tops of frames to rest
[illegible] Have as soon as cold weather comes on always extract the bundles
[illegible] to allow to crowd towards center — Easy when bees have made comb
[illegible] and bundles fairly set in if tight difficult to lift [illegible]
[illegible] — Small chinks seem often in the present arrangement to crowd to one side or other
[illegible] — this straw walled [illegible] made [illegible] keep them in the center
[illegible] bundles two tiers of bundles might be used — but if bundles were made [illegible]
[illegible] — easy at any time to remove [illegible] one central bundle [illegible]
[illegible]

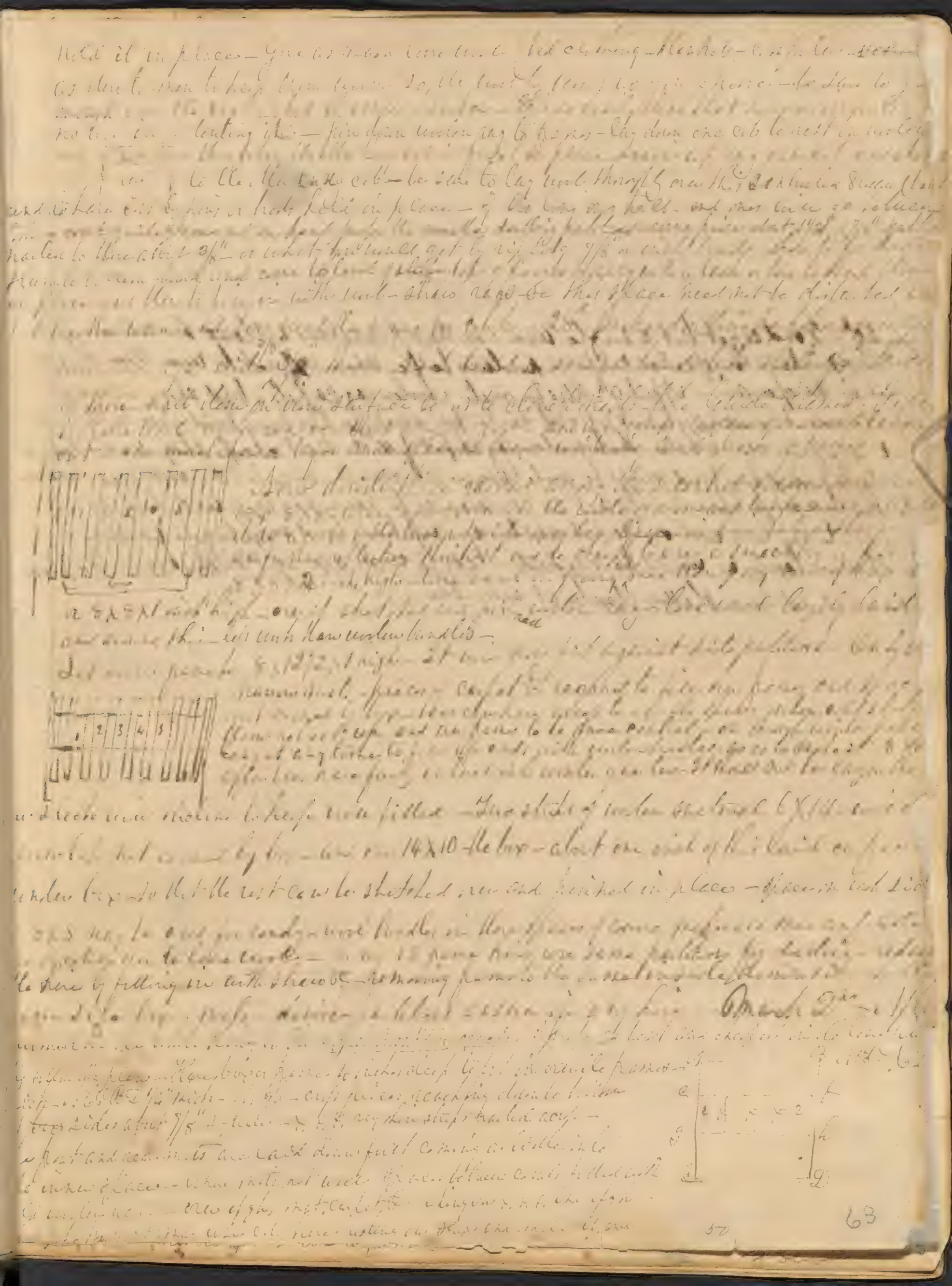
[illegible] between central handles two 1/2" wide sticks about an inch apart [illegible] which would give to a bee table a chimney to admit bees to recep[illegible] [illegible] liquid food & bees access may be kept open at any time to lift [illegible] [illegible] would be simple but [illegible] [illegible] advantages of [illegible] [illegible] need for winding bees to the best advantage in the spring [illegible] [illegible] bees [illegible] [illegible] [illegible]

[illegible] to do so [illegible] almost [illegible] to [illegible]
shaw handle. Would to use [illegible] Just begin to use [illegible] handles — that
we think best to use 8x8 box — 1½" inch slip. With the rebate [illegible] get a supply [illegible]
[illegible] which part wood — [illegible] of the [illegible]
[illegible] box [illegible]
[illegible] — [illegible] — [illegible]
[illegible] warmer to least — Crook wooden wedges (under cover) nothing better can be get
better than wedges & combs frames to keep the bees and warm!! Cotton to catch affectually
[illegible] and [illegible] to use — very little material needed — [illegible]
[illegible] to have the bees between the combs — Made [illegible] in new est [illegible]
[illegible] in the box — For small [illegible] — [illegible] — [illegible] wedge lead [illegible]
[illegible] of box to let them up to work — [illegible] not in use put into the box [illegible]
[illegible] let [illegible] box — nothing to tempt them in [illegible] — in shaw — would bees desert
[illegible] provide more little to contain ½" of the comb — If they did they would not [illegible]
[illegible] that to remove it and would [illegible] up — Divide [illegible] had the [illegible]
[illegible] bees [illegible] — and [illegible] to day! Have found none in any
[illegible] hives at yet — 19th — Have opened many hives — find [illegible]
[illegible] dead bees in other many — Bees in proportion to the [illegible] have been [illegible]
[illegible] — [illegible] their [illegible] will have [illegible] little or [illegible]
[illegible] — The [illegible] — [illegible]
[illegible] of great [illegible] — Have to day [illegible] wood between some of the [illegible] between the
[illegible] two hives — with a [illegible] smoke easily done and quickly without [illegible] any bees
[illegible] also tried wood to feed sweetened water with [illegible] method [illegible]
[illegible] wood by [illegible] the [illegible]
Hives — After spring has fairly opened and bees have been examined [illegible]
[illegible] — Space between comb wood [illegible] hole left open [illegible]
[illegible] — [illegible] — [illegible] — To do this and to put wood between [illegible]
[illegible] — [illegible] — [illegible] — [illegible] — [illegible] — [illegible] —

[illegible] — Bedbugs could get of a hard [illegible] and [illegible] old [illegible] [illegible] but [illegible] — [illegible] [illegible] [illegible]

[illegible] pound of [illegible] [illegible] [illegible]

[illegible] last of a[illegible] so little trouble to remove [illegible]. Those who
[illegible] experience can use glass [illegible] sides — stand double they don't
[illegible] on the [illegible] plan — felting on the [illegible]
[illegible] — Don't let side pieces for dividing up down more than 3/8 [illegible]
[illegible] bee can keep [illegible] clean in [illegible] — In such a hive I used
[illegible] in [illegible] Thermometer — with warm box [illegible] — [illegible]
[illegible] as much needed to fill in divided spaces — lay on mat — box — [illegible]
[illegible] in examining the preparing from [illegible] — 26th — [illegible]
[illegible] small warm box found off to day in admirable condition — as compared
[illegible] in the hives which were in the [illegible] equally good and with the bees [illegible]
[illegible] lips of frames so as to prevent escape of air — Space above frames before [illegible]
[illegible] only be forced [illegible] — to side of bees felt warm & [illegible] with glass [illegible]
[illegible] side of [illegible] — other spaces filled with [illegible] glass [illegible] no mat or carpet
[illegible] — mat, carpet, old [illegible] — laid over top of box — large [illegible]
[illegible] laid on to fold over cloth — same on front before the [illegible] box. opening
[illegible] perfect protection above the spaces and the bees [illegible] not only sending the box
[illegible] — In want of such an arrangement small or [illegible] blocks and some
[illegible] shift to one side of the hive usually the side [illegible] the [illegible]
[illegible] out of pond and [illegible] to — This arrangement will keep the
[illegible] and where the [illegible] will be most acceptable. In preparing a large hive
[illegible] for wintering — go through with the [illegible] — cutting
[illegible] and lifts of frames — adjusting combs — and put on warm box — The [illegible]
[illegible] gets to be of a [illegible] too cool to allow bees to leave [illegible]
[illegible] to allow bees to fly before [illegible]
[illegible] be done with [illegible] — It would not [illegible] be necessary to
[illegible] to their proper distances until the bees could fly freely — as they would not [illegible]
[illegible] they could get from supplies — If any [illegible]
[illegible] — might be [illegible] [illegible] to set on honey [illegible]
[illegible] — [illegible]
[illegible] — [illegible]
[illegible] —



[illegible] cols — [illegible] nailed on them — [illegible] or cols like [illegible] ago — [illegible] Cut the frames [illegible] out to the honey board — [illegible] who [illegible] [illegible] the work — [illegible] enough [illegible] to lay chance — When bees have family [illegible] fall with dates in Spring are there to feed [illegible] colored water — [illegible] cold weather — passed off [illegible] to clustering bees — Of course [illegible] with open ends — cols — [illegible] — [illegible] with [illegible] [illegible] [illegible] frame 6 x 8 x 1 inch high — with [illegible] — Carpet — Clothes [illegible] cols — bed [illegible] — lay combs or honey board over this [illegible] — [illegible] — [illegible] — [illegible] — [illegible] — Objection to Cols — moisture cannot pass through them — [illegible]

[illegible] 20th — Found as yet but a single worm — in the old nucleus [illegible] in cellar — [illegible] clusters [illegible] special center depositions [illegible] more [illegible] to warm [illegible] in the open air — April 9th — Use for mats woolen rag carpets — bind strong around [illegible] to prevent unrolling out — cut out center for small central box — bind with center piece — [illegible] large piece around holes — Thick woolen rag carpet fills the bill! cheap — strong — warm — easy to [illegible] — Center piece of honey board might be made to screw into clamps — so as to take out and leave [illegible] — This will answer where climate is so very severe as to cause dampness under honey board — [illegible] means to lay bees out on carpet and to raise up honey board enough to give [illegible] space of [illegible] cleanliness as would be needed — Easy to work all right in this way — Do flow hives and not have better cleanliness at will — see —

See Dec 7 Such an arrangement would enable to put on or take off the covers
[illegible] to make the mats — On one frame at one side or [illegible] D
letter [illegible] stand up on one side and fasten by list tacks place the
covers [illegible] — Keep out one frame on the other side — keep [illegible] can be
on the side where covers are — keep mats close there — leave out on the
bottom next to the side which is not protected by cover a few cols so they tog-
the bees could carry out their dead there — or rather place one row of cols from

and occupy part of the space left with cols, they have had to leave
[illegible] object that side might have the covers placed on ends — the
bees can carry out dead bees & when there are no cols on the bottom one [illegible]
may be left in [illegible] or when the weather is suitable for feeding —
Sept 10th — Set hives 11th on a high rest or pallets — Set hives on
pallets — for bees will make in dead grass from rest on the cols then
[illegible] and some of the honey [illegible] holding the cols — Be sure and
not have slow ships to fire — for [illegible] [illegible] and [illegible]
the cols — if not [illegible] ship easy to set the ship [illegible] there —
Oct 5th — To day I have bought my [illegible] for covers for [illegible] hives
[illegible] to place the bees — 1st I trimmed the [illegible] [illegible]
except for [illegible] — My hives do not seem [illegible] in the [illegible] [illegible]
the [illegible] touching the back of the hive and also close [illegible] [illegible]
always at command — I can set [illegible] in the [illegible] [illegible]
any [illegible] [illegible] — To give air or ventilating [illegible] [illegible]
[illegible] good [illegible] place for [illegible] — 2nd I trimmed
[illegible] — The bottom of the hives [illegible] [illegible] of cols
one [illegible] [illegible] — [illegible] [illegible] [illegible] [illegible]
[illegible] — [illegible] [illegible] — [illegible] [illegible] [illegible]
[illegible] [illegible] [illegible] [illegible] [illegible] [illegible]
[illegible] —

Driving. — By removing the top of my hive driving may be done with greatest ease — The bees are able to pass into an upper box through all ranges of comb — and from sides a little smoke placed in a box below will often hasten their ascent — No need of removing a hive to — although this may very easily be done — Where a hive has been by tap sides a noise made by rapping against them will soon alarm a bee and cause them to ascend — We ought not to attempt to hurry this process too much — as bees are always anxious to secure as much honey as they can before they leave their old quarters — I find by rapping against my driving hive, bees start almost away at first — It is very difficult to drive a small swarm out of a hive but partially filled with comb — in the ordinary hives — or to expel a colony that has lost its Queen — In my hives by a use of a compound box the comb may be taken out in a few minutes and the bees compelled to enter a new hive — In most cases experienced and fearless operators will find this method of transferring bees much the simplest — ~~It enables us to take out half the~~

March 6. 1862 — According to my last plan for ~~driving~~ enclosing a hive the bees may by a wand of a little smoke be driven at once into a small hive and is removed into the upper box — and this may be lifted off. This will enable those who are apt to be strong to multiply colonies safely on my plan —

Smoke — If bees are alarmed by a little smoke — before hive is opened upon they feel themselves — and may be easily managed —

Driving to farm Mr. S. — When as many bees with old Queen as are desired are secured either by driving — or by removing hives which is much best way — then set the bees in the new place on stand where old one stood — shut up old one and keep it shut until every of that day — put it some distance from old stand and give it liberty in that low before sun-set — It ought to have water of course — A part of comb in old hive may be transferred to new one if it is not intended to have old one swarm again —

April 23. 1862

Divider — Let it be glass —

Dec. 7. 1862 —

Door — side one for my hive — Let the top, bottom & sides be bevelled to a sharp edge —

1, 1 are clamps to prevent warping — in a thin strip also bevelled at 3, 3 and made to slip on a strong board and in place under 1, 1 the design is to have the door pivoted on the wood when it may be put this door [illegible] on the divider and let the comb come out so to wide as well as the top — Some may prefer such an arrangement — it makes the hive the very true [illegible] on the back edge of this door — If the sides of the hive project rear as well as front a double surface might be used — this would avoid "weakening" effect of side door — The back surface would have no bottom — two surfaces front and rear might be made higher to set Dayton on —

Drones — The Drones are unquestionably males — It seems difficult at first to see why there shd be so many in a hive — especially as it has been satisfactorily established that one impregnation makes a Queen fertile for life — as the impregna° of a young Queen always takes place on a wing — it is of a not most importance that a Queen when making her excursion to meet a drone shd be sure of finding one — If she has to make many excursions she may be lost — Thus she might be literally sure of in a large apiary, even if each hive contained but few drones — but in a state of nature bees live in forests and a colony may have no neighbors for miles ...

A good stock sometimes sends off three or more swarms — especially in a hot climate of which bee is a native* — a Queen of all these except a first wd contain an old and feeble Queen — we need drones — These and other drone considerations show a necessity of their being produced in large numbers — As we have by domestication, a bee and hardly the numerous colonies in a small compass taken away a necessity for so large a number of males — we ought to do all that we can to limit their production — If a hive contains a very large amount of drone comb it wise be safe to dis-infect it entirely — In hives constructed with movable bars such combs can be cut out — so that a bee may replace them with worker cells — In a specific bee management of an apiary a few drones a better — A very large number are useless as a very large number of cocks or bulls in a farm yard — The farmer who did not wish to allow a population of sires to remain undisturbed — on a plea that it is best to follow Nature & forgetting that his stock are not in a state of nature, wd be as wise as a shepherd who refuses to do all that he can to discourage a breeding of sheep —

Number of — The very fact that many young Queens are lost when they go out for impregna° shows what wd be a result if drones were not quite numerous —

* In Sydney, New South Wales — one colony is said to have increased to 300 in three years!

Drones early — A hive might have early artificial warmth to bring drones sooner — so that Q. may be impregnated earlier than otherwise —

Destruction of drones desirable — but very limited production of a great thing —

Hour-Side one — See Dr —

Expulsion of — Some time in July or August soon after swarming season is over the bees expel the drones from the hive — They sometimes sting them — but more generally gnaw the base of their wings so that they cannot again return to the hives — if they are not killed in this way they are so bewildered that they cannot feed and thus rapidly grow weak & perish — The bees not only destroy all the old ones — but drag out all the immature ones for their cells — Occasionally for some reason or other — they destroy the drones early in the spring even before swarming has commenced — If bees are moved for their position greatly reduced in numbers by removing them for their accustomed stand or from any other cause I have noticed that they almost always begin at once to destroy the drones — If a hive does not expel its drones at a suitable time — it may be taken for granted that there is something wrong in the hive — The Queen is probably diseased — or dead — and a colony should at once be supplied with a new one — or if this cannot be done and the bees show by their want of spirit that they are without a fertile Queen — the colony should at once be taken up — before it is robbed or destroyed by the moth — In my hives with movable frames — it is easy in a few minutes by ~~removing~~ lifting out a few of the central combs to ascertain whether there is brood and of course a fertile Queen.

Said a gentleman engaged in the business of Queen bees stocks — The old fashioned bee keeper always looked upon such stocks because he noticed that they were long on their stores. At present they are generally allowed to be mere breeders to the rest of the whole apiary.

Drones Keeping — In a large apiary it would be advisable to have some hives free of their drones until late in the season — to wit drones — By inserting drone comb in the very center of a hive quite early in the Spring as soon as the Queen commences breeding might not drones be bred much earlier than usual in the apiary —

Drone Eggs — how to rear queen from — New
Dandy — better than mother to foster queens —

Drones – Huber thinks that Queens must be 11 mo. old before they lay eggs for drones – altho' he seems to admit that there may be a few rare, fair season – But young Queens sometimes lay a number of such eggs and I assume I same season they were hived – In Huber's latitude he did not notice such an occurrence – There seems to be a natural connection between abundant honey gathering and drone breeding and swarming – Buck-wheat swarms – are very late –

May 1852 – Found drones reared in worker comb – It was taken from a hive in which there was but little drone comb – gave to a Queen less to rear A Z – noticed some cells covered with drone capping –

Theory – Queens do not deposit drone eggs in cells – unless circumstances are favorable for rearing – They do not deposit worker eggs in their proper cells unless circumstances are favorable for rearing them – The bees eat the rejected eggs – is not this the case with the eggs of drones –? I know that both hands are laid nearly together – perhaps the same day – when a swarm is made no drones – when they begin to be powerful – drones – guess so – Have noticed in many hives a few small drones reared among the workers – in worker cells –

(May 7, 1860) To Stat in Chimney – Set a stick before fireplace against fireplace ruled here – So that a stick written on them as a slide – Set this stick upon several sticks just high enough to let out queen and worker but not drone – May 8/10 – Queen may run the slide – only in day time again –

[illegible]

[illegible]

[illegible]

June 1854

Drumming — flight with a mighty leaden wing, with the U D
feed — slapping with gentle but — strong — & big upper
cords is heard & marked. Here they feel as a man when hope
is about to leave him dear — Next Chance — Success will be —

[illegible]

[illegible] the [illegible] the [illegible] the [illegible]

[illegible] the [illegible] the [illegible] the [illegible]

[illegible] the [illegible] the [illegible] the [

Early Breeding – Put hives after they have flown and have well cleaned themselves ~~into~~ upon plenty stable manure – old stocks which have abundance bees hand only ought to be forced –

March 22 – 1812 } Let the dark space as soon as weather has allowed bees to fly and cleanse themselves – be filled with manure – ? smell – vapor – must be excluded – doubtful how air is admitted – Suppose pipe from greenhouse heater to pass under dark space – this might answer – and a very pleasant heat might be kept up – An light and stove might be used for experiment – dark space may have a chimney – so that bees will never perish for want of air – even if stove also extinguished – The heat & might be kept from entering the hive directly – allowed to warm bottom board – or to fill double space – manure can be renewed from time to time by ~~making~~ repeaters – bees must have water given to them – and ought to have a little honey – Where horse manure can be had on the spot I think that this plan might answer – the manure afterwards used for gardens –

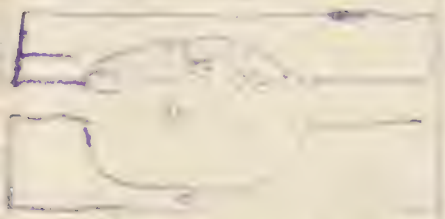
[illegible] the bees would thus have a better place [illegible] as there would be much less chance for [illegible] [illegible]

[illegible] the bees [illegible] – the [illegible] for [illegible] [illegible]

To test this fully a large number of [illegible] made in natural [illegible] in a room of proof [illegible] – I think the experiment would [illegible] [illegible] with [illegible] [illegible] [illegible] [illegible] [illegible]

Comb Guides - or long Foundations - Lee - Journal - March 16th 1868 - 28th - 31st - April 8th

Thomas Thom -



13

Experiments – Comb dipped in various solutions and exposed to see if it can be preserved against bee-moth –

Drones – See Mater Regia – Huber speaks of Queen refusing to lay worker eggs in drone cells – At first this will seem to contradict theory of Dzierzon – but it does not necessarily – construction of queen cells and laying of drone eggs go together – indicating their connection – If Queen can lay drone eggs at will – choice – she will not lay them in a circumstance in wh. Huber put her – for she will have no intention of swarming –

Fertile Workers – Huber found such – reared in cells adjacent those of Queens reared artificially – he did not decide how they were impregnated – Obtain them as he did – confine them to hive – and see if they will lay eggs – examine whether they have a spermatheca – therein – and whether those that lay eggs are impregnated – Examine microscopically the food of young Queens and the food of other larvæ – try it if possible by chemical tests –

Dzierzon found fertile workers in drone mothers – he was likely to do this because he makes so many artificial Queens – He believes that without impregnation they are able to lay eggs of males – but some of their eggs be impregnated with a male semen –

(April 23, 1861) Can we by experiment prove what causes queens to lay eggs

Do the bees give the hint? – [illegible] – if queen does not meet the drones she will long lay eggs – [illegible] – meets drones – can we give water – so of divided [illegible] – try to put a queen as soon as she comes back from drones with all eggs laid – and no [illegible] – another will have had no bees – and let [illegible] alone – as soon as [illegible] lays a egg – [illegible] – [illegible] for dispatch – (24) One with fertile and they are no bees – [illegible] that in her hive so that she could not go to meet the drones –

Worker – (1) Let a worker be dissected in the nymphine state – and when it has just emerged – to see if any trace of an ovary can be found – or if it is more clearly developed then than later – (2) Let 1 eggs in worker and in drone cells be examined and measured microscopically to see if before hatching there is any difference – also 1 worms for 1 first ten days –
(3) Let rye flour be mixed with honey and fed so as to ascertain whether bees can on this alone nourish their brood – (4) Let 1 air of a hive when bees are working in wax be examined to see if it contains more carbonic acid gas than when they are not – (5) Let 1 air of a hive be examined when 1 bees are in repose in winter and have none but a small entrance – i.e. 1 air from the top a glass hive with a slotted the best it ought to be well protected – (6) Examine microscopically and in various other ways the food of 1 royal larva – and that of 1 worker – (7) Measure size of a bee moth – (8) See if workers and royal cells young queens when taken from bees and kept warm will eat of themselves so as to grow – whether 1 food in which they seem to float decreases –

Enemies – The Bee-Moth Tinea – Galleria – (Wide Moth) This is the most destructive enemy of the Bee – Birds – King-bird – Martin and some other birds are fond of bees – The wanton destruction of birds the cause of incalculable loss to farmers and horticulturists – It is a well known fact that birds return in the Spring to the place where they were reared – and that they ~~will soon~~ will soon decrease in places where they are allowed to be destroyed – No Apiarian however partial to his bees wd allow birds to be destroyed – because of a few bees which they may devour – They will do him much more good than harm by killing the insects wh. prey upon the fruit trees – and by discouraging their ~~more~~ general ~~increase~~ culture of such trees – diminish the forage of the bees – Some of the birds are very fond of the worms and immature young which are thrown out from the hives – and will sometimes seize upon them ~~even before~~ while the bees are dragging them off from the alighting board – In Europe the wasp appears to be a great enemy of the bee – not particularly troublesome in this country. Mice sometimes commit great ravages in hives – they enter them in the winter season and often cause their entire destruc° – The entrances to hives ought to be too small to allow the mice to get in – Ants are sometimes troublesome – especially the large black ant – but hives are seldom attacked unless they are diseased – To guard the bees against their enemies let them be kept in wire-made hives and so managed as to be kept strong in numbers – they will then be able with judicious care on the part of their owner, to defend themselves –

Exhibition - Any Observing Hive wh. can be put into a box - the very thing for exhibition - at travelling apiary - &c -

Economical Considerations. There are few if any cultivators of bee in this country who have very large apiaries and who make a keeping of bees a business of great importance — If a swarm of bees "does well" it yields a very large profit to its owner — What is a reason then why a business is not prosecuted on a large scale? Many are of opinion that only a very limited number of swarms can be kept to advantage — The experience of large cultivators shows that this is a mistake — (Dzierzon) I shall now proceed to give what I suppose are a real causes why in this country wh. is a Paradise for bees, we see so few who have succeeded in establishing large apiaries —

Epsom — Have seen hives which were capped all last winter without bottom boards — (suspended) — without covers of any kind — healthy but not very strong —

Italian Bees — Try to get some of these from Boyd — larger than the common bee — may be able to work on the white clover —

Seal up corners — Position a small strip in the slotted end bar keeping it in a level rapid of twice over the projecting end of each frame, and leave it thus the slotted on the opposite end from the end — by the time they are on the end of the frames — before — tied on strips of board they may be laid over the tops of the frames and honey-board sealed and all will be fast —

Feeder – April 20. 1860 – Set there be a thin partition running across here thus –
It may be arranged so as to facilitate interconnection between
the last long fence to this – Can this take in and cut – and perhaps when
raising queen there might be some advantages – Instead of a partition on
the end might be only a rod to rest fence on – but then danger of crushed combs – No rod –
the partition of tin or sheet iron – taken out as soon as comb built – (a-a) cut – rotten wood
anything seem to encourage bees to crisp one in cold weather – doubtful advantage of – but
worth trying –

(March 28, 1861) Set piece of sheet zinc – or hard wood to be fastened
to front end rear of hive to project 1/4" above the rabbets
On edge of this the frames might hang – advantages (1) Reference
for bees to glue them fast (2) Great facility in sealing down, or
pushing frames – there being little danger of killing bees under them –
disadvantages – Some more room over rabbets for comb – frames need not be
so well adjusted to horizontal – In hives now used would leave too
much space under them – Hives might easily receive this addition –

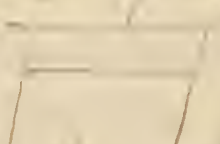
(April 8th 1861) Bead to be added top strip of frames to hang on
guides (made such with Bellows leather and slit to the top) which keeps
off the rabbets the parts of the frame may rest – they would lie flat – and
be very convenient to handle –

(May 14th 1861) – Double rabbet the ends – that is leave a strip 1/4"
wide and 3/8" or 1/8" deep on the inside edge of the rabbets – on this the
frames would rest – only one rabbet in case of finishing bees –
This bottom board would make a splendid feeder! It might be made
of tin and have a piece of wood to fit in the back center – say in the
shape of a wheel's spoke for center – [illegible] – ye flow [illegible]!
It would hold plenty for stimulative spring feeding – This contraction seems to me to be
good and feasible – By this means shaken out the bulk of the frames I get out of
the way the pecks or pieces of the frames – (16th) Holes may be bored in the bottom
board with 1/2" or more for bees to feed – take the blocks [illegible]
[illegible] – (18th) Bore holes or make deep notch at the back edge of the
front bottom board – leave a ledge on each side for stops to rest on or

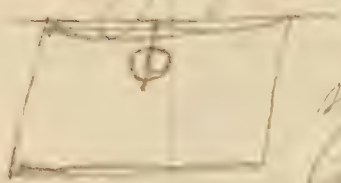
would be much better see —

(July 15th 1861) Bradding tops of frames — If frames had tops with holes or slots 3/8" deep to keep them so far apart — could not be kept close to get enough play to remove first frame — I have now devised a plan to remove this difficulty and — set frames from the hives in first and rear have 3/8" play — put hooks on tops or near the ends in profile — Top first — start one frame from front to rear — next from rear to front — next from first to rear — next from rear to front — the hooks of adjacent frames engage by the ends of the frames so that no adjacent frame can be kept as near as they the have no hooks — and thus full space room be given — These hooks should all be just 3/8" — could have deep tops frames and of them by inserting of holding at or near by keep them by the ends — or by inserting bar of wood only in the top — This seems to prevent the swaying or rocking of the frames — and they do not of course interfere with the feeds feeds — See 40 Jan

(July 15/1862) The superiority of these frames made me to frame 3 of consist of



style of frame — I cannot be relied on to seems to write perfectly — The honey-dues will always cause



the bees to fill them — the combs seem but my experience and leading object of comb divided always have no preference with shaving hooks into them — the only shaving — Why not had only front of frames of the tops to be bedded in? How about frames rear to front always to be not by crush bees? This would give more motion to the bees to get from passage for cross to left of the 10th frame and a need for tumbler — put strips behind the frames on the wall (when through all) are dry — and bridge off — It is, however, very doubtful whether the bridging on the top edges would not be more trouble than it is worth. If the parts are to be moved any distance — it would be well to make the end pieces and put in small hooks to fasten them to the sides — (March 3, 1863) May not this have arisen from temperature? Each [illegible] of these frames rear rear notch put slightly [illegible] 1/16" not [illegible] of frames from sides of hive — Let this shelf be wider than the

See 80 — Dec

F

β See Ew — 1st Frames Lin to regulate distances of 1st Sec. F 1

2 Frames — to facilitate manipulation with — See H, I

Frames Thumbs. The 3/8 space between 1 frames and sides of hive will afford ample passage for 1 worker one of 1 bees and for 1 bees with 1 second may even when the upper part of 1 combs in 1 main hive are filled with honey and made to approximate so as to obstruct the air and 1 bees — they will have the most convenient way of getting up in that hopping over 1 comb — or crawling through the bees —

Farmer's Plan — 1 2 3 4 = spring 4 2 5 6 8 1 = state when increased for

7 4 8 5 9 3 2 6 1 = state for increase —

The first transposition must be made early before swarming — say middle of May — Bees may be driven from 2, 3 — by smoke — or shaken from bars — See that only one sealed Queen is left in 2 and 3 — The later transposition must be made before 1 drones are killed — in this case half of 1 combs of 1 hive from which 1 bees are driven must be given to 1 hives with which 1 bees are put — If this plan is to be pursued by one not well versed in scientific management — it will be well to meddle not at all with 1 Queen cells. Proper storage room being given — the hives will not swarm — except perhaps 2, 3 which raise 1 new Queens — Casts from these may be united — If 1 Apiary is large let him have a sprinkler with hot or sugar water and sprinkle 1 bees as soon as 1 cover is taken off — or a little smoke — which will not attract other bees — This much easier than to drive out — 15 or 20 minutes will return to a hive — In this way clean honey may be harvested — and yet bees may be rapidly multiplied where Fall food is abundant — at fair day should be selected — a sunny day — and 1 whole thing may be done up at once — If there are no Fall supplies 1 second transposition must not be attempted — unless rapid multiplication is aimed at by feeding —

The weather must be such that 1 bees will take no chance — but little or no admission of air to 1 hives with food until 1 bees from charged hives are in —

This plan united with clipping 1 wings of all Queens as soon as they begin to lay and removing Queens — in their third summer — Removed Queens might be put with bees in three combs and bees with Queen Palace — and used next season — when they may be destroyed — The swarm — after they have been driven into a box on their hives — with or without a little honey — This may be set on 1 empty hive — they will build in this — raise honey but soon descend below — This 1 plan to get the most honey — By 4th Made strong from old hives substituting in this plan — by day —

Frames to page Sec 2 u(8) 1868 —

a F

March 6th 1852 — Entrance like my slaf hive — If box dovetailed down to B.B. Farmer hive — Two round holes in the sides — for slaf — the pieces coming out are used as cover — one in the back — Box dovetailed — inch and a half stuff. Bottom Board full inch when worked — 24 X 25 — Lifting board [illegible] with hollow space below very unusual protection can be given to the bees — in winter fill in with dirt leaves &c — The Cover laps on B.B. slaps forward air ascends — a little saw dust chaff &c will make all air tight — Straw manure [illegible] front and rear will exclude frost —

March 6th 1852 — Box dovetailed — 22 X 20 X 13 — when finished sawed in two to secure hive and cover for Tumbler brand — Ends with the holes as above — half inch pieces put in 1/2 inches from front to rear — in a rabbet on the ends — to give a space of dead air — The upper box may be hinged &c In winter should be filled with dead leaves — hay — straw &c — The bottom space front and rear might be filled with fine charcoal &c — The ends will not need so much protection — If one bar from each end was taken out then a divider might be put down and the vacant space filled with hay &c This should always be done when the bees have not filled their hives — A hive made on this plan would be exceedingly durable — and would afford great protection — and yet be not very expensive — It might be made cheaper by some other way than dovetailing — but not so thoroughly —

It is obvious that the honey may be taken from such a hive in the form of boxes like or in boxes, tumblers — frames fits the above —

March 8th 1852 — This is the plan for general use — The box may be put together with ~~pa~~ slaps in corners — front and back pieces one inch — dead air space may be filled with fine charcoal &c — Rabbet for frames ~~3/4~~ 7/8 inch — this avoids all the capity for such very great accuracy in construc — and enables a farmer to make his own hives — He measures from outside to outside — so that any slight variation in the inside will not interfere with his frames — He may make the hive for say 15 bars and take out the space for two bars — ~~The last~~ The one or two bars next to ends may in place be taken out — Divider run down — space filled with hay &c Hive may be taller — box with frames above — frames just like those below — this will be a good place for some of the bees — to get under of white comb &c — Upper front hinged with moveable hinges — Tall hive ought to have only two rooms —

August 1865 / Comb is in a receptacle of any kind that can hold honey or syrup - the best of feeders! Such cells then are offered of wood — See Sept - 1868

F e

Feeding of Bees. Proper time for feeding small quantities. ~~Feeders to~~ as soon as they are hived - that they may build sufficient comb for raising young bees - then if they do not collect & store for winter - they will be with fair feeding.

Feeder - A water feeder may be made of glass or glazed ware - This will be next in importance to a honey feeder - Pure water ought if possible to be always accessible to the bees in their hives - as at this time there is not a sufficient amount of water - and in hot or windy weather save the lives of many bees - A honey and pure water feeder may be combined - The bees accustomed to find water in the feeder - when they are shut up or are moved from their familiar spot to make etc. Swarms will never suffer from the want of water.

Honey and Water Feeder Sep. 20. 1851)

Ventilating Honey & water feeder - Sep. 22

In winter this will answer the purpose a gentle current of air through the hive to carry off all moisture.

Sugar Candy. A most excellent winter food for bees - if it can be given as in my hives from above - May not sugar candy be a good thing to feed to bees to keep them at home when they are tempted for want of natural supplies to go to confectioners &c

Bees, when fed in a hive if their hive is not full of comb will often use a large part of their feed in comb-building - instead of storing it up - This prevented by inserting divides - or they may be fed sparingly and a balance supplied with candy - If colonies need supplies in order to carry them through the winter they should be fed as soon as the fall flowers fail - say the latter part of August - If the feeding is delayed too long the cold weather may come on before they have sealed over their supplies - Granulated honey is very apt to become sour unless one

of the most common causes of dysentery – It is always better to feed from the top as the heat of the hive ascending will keep the food warm and it may be secured against all danger of attracting rotten food – The experience of those who feed liberally and endeavour to have them deposit in their hives as at that a time as possible also that he judges necessary during the whole time that they are fed they are excited to unusual activity and consume much more than their usual quantity of food – It is best to feed at night – If the apiarian has honey on hand it will be much the best way to introduce these into hives that need additional supplies By the use of my hives with movable bars – the spare honey of strong colonies may very easily be transferred to ~~needly~~ needy ones – Pure honey is the best food that can be given to bees – ~~If it has~~ West Indian honey will answer a very good purpose If it is candied it should be brought to the boiling point ~~that is hot~~ It is a great mistake to add much water to it – The bees are averse to sealing over their stores until the heat of the hive has evaporated the water from their honey – they act as tho they knew that their honey was liable to sour – Fed honey ought to be but a little thinner than honey just from the combs – If when the honey has reached the boiling point some sugar be added it will make a very good food – Winter feeding should in all cases if possible be avoided – In hives constructed as mine are ~~the top of the hive may be removed and~~ plain sugar candy may be put between the tops and the bars – I have ~~always been~~ been an advocate for moderate feeding in the Spring – It is sometimes necessary to prevent the bees from starving – and if judiciously done is a great stimulus to early breeding – Feeding must be done with care or else robbing will be encouraged – and feeble colonies be ruined instead of strengthened (English recipe for feeding.)

The taking honey on frames from stocks which have more than enough and exchanging it with for the empty combs of destitute stocks helps both – too much honey in the spring interferes with breeding – Being able to feed so easily with honey in the comb or liquid or sugar candy – stocks may be kept without large supplies – so that they will do all the better for breeding early and powerfully – Get the early stores out they will get the honey – without by a bill of expense to their owner –

Winter & early Spring stimulating feeding – Journal – Oct. 28th 1879 –

F i

Friendship, subsisting between Christ and the apostle John – most beautifully depicted. Hall. Vol 1. P. 209.

Do inculcation of not neglected in New T. Do. P. 205

Feeding – for profit – The pure article fed to be stored in beautiful frames – May October – should be done after the gathering of pure honey is over – As bees will not fill above until their hive is heavy below give them a cheap article until they have full below – Tumblers may be taken away before they are sealed – made from cheap honey – the way will be pure and will not cost as much as that fed from a more costly article – These tumblers may be set where bees can take out the honey – then may be placed on hives to be refilled with a pure article – Hives which have been thus lessened will have spare honey below which in Mar or Spring should be removed to feed weak stocks –

May 21st 1852 – Let sugar water (will not by scent attract other bees) be always on hand to be sprinkled on bees whenever in the least disturbed by open top corn – Smoke disagreeable – they soon regard any approach as an injury – but if always fed a little when disturbed – they will regard approach as a kindness – pour a little into the tumbler hole before opening – sprinkle as soon as you open –

June 17th 1852 – put strip in winter to keep frames far then off from bottom board –

July 1st 1852 – Let hives be so formed that when bottom starting bars they will hold liquid honey – then towards evening pour the requisite quantity through one of the holes of the tumbler board – if this plan will answer it will be by far the most expeditious – but this will answer in warm weather – in cooler weather feed as usual from above – or give sugar candy – If number of bees small so that they do not build comb feeding will prevent breeding – as they will fill the cells – If candy is to be fed in the winter it will be best to raise the tumbler board on 3/8 strips – so as to give ample room –

July 19th 1852 – Pour the feed in by a tin spout towards my from the mouth –

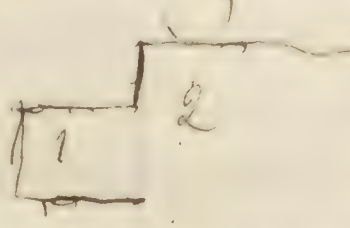
Fecundation of young Queens — Always danger of young Queens on their return mistaking their own hives — If the hives are all as they ought to be exactly alike — if they are on a same level and close together there will be great danger of mistake — Let the hives from which a young Queen are to early be carefully made to differ — if they are white put black letter on front — if painted — or make them differ in some other way —

Nov. 29. 1862

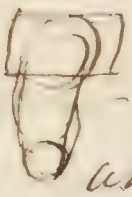
Frames — how to regulate distances apart, and to keep the operator to no — Plan of not confining them to place is that caught queens get them disjointed — I find this can be kept with simple stick in or at top of frame — with the frames full will not — removed — or bind the frames fast to the rabbets —

August 11th 1865 — Do not my frames without holding the grooved rabbets, have a tendency to make leaving on the rabbets, thereby not be improved thereby — Perhaps perpetuating

Frames —



— the projecting part of 1 & 2 on each side — leaves bee more room for bees to go behind frames — & by consequence leaves the bees hands to be improved — (12th) Have tried some frames thus cut and am delighted with them — often wished to have frame without part projecting it — fingers get tired in admiring them — If necessary to try — give a better chance than ever before — This seems to me a very great improvement — one which will greatly facilitate the management of the frames — Feb. 24th 1868 — Feeders — the bees can be kept at point — bees will on fine days — to the in an extra feed — in cold weather — bees will rush — put more cots in case — If bees the entire — feed 1 & 2 in the feed would be little — so easily forsaken by their kitten — the feeder — inside of case ~~[illegible]~~ — make a stalk — light — by — feed — how pleasant life of cat would be keep warm —

April 15. 52 – Flower pot – for handle  – comb fastened on to glass – when removed cut from sides and comes out whole on glass – see from upper glass when full –

Journal for July 15th 1862 – 48° 5° Day cell – Hen sick – [illegible] certainly from 2 w – [illegible] – [illegible] – [illegible]

[illegible] — Still the same no sign of a [illegible] — 25th [illegible]
to a stage they cut [illegible] comb of the [illegible] spread to fold keeping of the [illegible]
spade & flame by burning — more than a colony some [illegible] spades by cutting — for half of
the trouble and expiration of flies could do not that life — half the comb had a piece
a great or piece of the rather killed killed — but they I let ones come off includes — I decons next
to unpeg for bees to cut up the [illegible] flesh [illegible] — [illegible] keep to [illegible] I
guess to be [illegible] good — 26th Very hot — Colony yesterday [illegible] — this
[illegible] of some [illegible] [illegible] — [illegible] — [illegible] [illegible] [illegible]
made by keeping the [illegible] — removed [illegible] [illegible] [illegible]
the clay [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]
[illegible] — [illegible] of [illegible] — Three Cage queens have already [illegible]
15 minutes after [illegible] — the first queen cell hatched [illegible]
[illegible] — [illegible] in 15 minutes the [illegible] [illegible] [illegible]
there [illegible] [illegible] [illegible] [illegible] yesterday [illegible] [illegible] [illegible]
[illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]
laying queen [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]
[

Fumigation — may be easily done in my hives — the receptacle to make the smoke should be placed in a box below — a draft by opening one covering cover of a hole with gauze will carry a smoke up —

Effect on bees — A little smoke before any important operation will make them quiet — or rather unaccustomed to sting — Rag or paper smoker should be used and never tobacco — spunk or touchwood very good — Puff balls if it is intended to shape them — Cotton rags dipped in nitre will supply

Feb. 26. 1872 — My dark cellar will be a good place for putting some burning rags or paper — ~~to~~ when smoke is necessary in any operation —

The hives when fumigated may be set over a small box in that top or bottom —

In this way bees may be driven out by persons who are timid — but in reality no smoke is at all necessary — a little sugar water for sprinkling them will answer every purpose —

March 1st 1868 — Mr. Old German suggests building supports of pegs — one at the top so that they cannot get close enough to crush the comb to the sides the distance between them — The bees should be reversed in my plan — thus project 1/4 inch that some gauze or bed lace in part cut see — they could then see get means to crush other then 3/16th — There hives should be put so that they will set in openings of Gently Dianes

[illegible] Hot [illegible] feeding or heating may affect the color of workers as well as queens? I have had quite a number of the 19 queen cells in this colony — Wish I could use very carefully [illegible] the queen! [illegible] U F [illegible] on hand — [illegible] Bees very [illegible] cell of the [illegible] — [illegible] 8 a.m. 78° [illegible] one cage but very pretty filled with a pretty brood — (29) 58° — Bees very [illegible] Hard-work bees have [illegible] — Drone laying queen cage a week ago [illegible] yesterday [illegible] — [illegible] — Made a [illegible] by "hanging" — [illegible] — very [illegible] — [illegible] — [illegible] —

Glass — If glass is used for storing surplus honey — its coldness is a great objection — but if a cover be put over in cold weather it will obviate this objection — in very hot weather glass is a bad material.

Glass boxes — Glass may be cut into suitable sizes — and packed in a frame of boxes — sizes may differ so that in cold weather a smaller box may have a larger one placed over them — Glass boxes may in this way have quite protection given to them — the box may be small — then a larger one over — then a larger one still — finally well shaded. It is the quite shape of the comb that [illegible] they [illegible] — get my [illegible] — (6th) [illegible] — [illegible] bees more upon it — Do not let them fasten it up longer than absolutely necessary — bees make [illegible] — [illegible] — [illegible] — [illegible] — [illegible] — very easily detached from legs — caught going into hive — a very small kind of honey — [illegible] made July 28th and sealed — [illegible] — [illegible] — [illegible] — [illegible]

March 18th 1882 – Box outside be wood dovetailed – a strong fastener – inside glass – space between glass and wood – front and sides filled with charcoal – a good non conductor – both double glass to give a space – glass from a hanging feather cost cheaper than any thing else –
Mark Lane – Bottom board might have glass on inside – too, gilded? moisture keeps
I attach very great importance to the use of glass on an inside lining – it enables me to obtain all advantages of double glass – (very expensive) and other additional important advantages – Hive needs no outside cover – may be made stronger – lighter – simpler – cheaper – more compact – the dovetailed space may be permanently filled – with the very best non-conductor – and the hive made warmer – The corners are all to be filled with putty – & the dovetail repellent character is given to the wood – The bottom is to be thoroughly painted with the metallic paint – which gives it no chance there – The top of a hive in a cold weather is filled with shavings the bees may have a little cotton or anything of a kind below a glass and the wood cover in the cold weather – The hive is to stand over a dark space – It will thus be able to defy accidental attacks of cold – or heat – 29th Trap part hinged so that when the hive is unlocked it may be unhinged – but not when locked – cover of a box hinged top locks in this – Frame projects up so as to form a rebate – sides and top are bevelled – sides on the Rabbet board rebated – no joints left exposed – This pleases me better than anything yet – Model for the patent office might to be made in this way – specifications should describe this hive – compact – simple – durable – neat –
The hives when made (11) – had a very large number of sealed and unsealed queen cells – Hence 25 sealed queens in one large stock deprived of its queen – (8th) Hot – close – muggy – fed – two unhatched queens in a cage fight were made to run – grapes, flour bees & to bed, & red clover bell – A queen hatches from a cell of 25th – just 15 days after queen laid any eggs – and two hours new – In the full cells a queen hatched in three or four hours before full two days after the bees began – (the previous queen cells have been cut out) shown in a manner very black – 9 feet a cigarette – a trifle free of bees & manage more black – hard to see – 9th 70.82 – Dark bug – (10th 70° – Have had many queens hatch yesterday and to day – Frame fine – [illegible] – very beautiful – very splendid – [illegible] – and all good size – [illegible]

Gentlemen — On my plan bees may be kept as gardens, houses — by those who wish to have the pleasure in that the labor — at practical apiarian takes charge of a gentleman's bees for a season — just as a gardener of his garden — Wings of queens clipped honey taken — comb changed — &c &c This I believe will greatly extend bee keeping —

Some queen has hatched by parting bees last night for heat — one worst again when the cap was hanging down — one when taffet tube of corked up — and when opened she flew out so far from home! — we the queen has hatched yet but we hope daily — Some queens have been hatched a week or two before I saw the — we got hot at noon with queen cells — the weather is hot — that reminds me of the pickets on you — and I have now put up bottle flies but you of course know my plan — I have a very good effect & keep queens — my queens seem to scale myself — and I say yes if doubter — I will be pot rather of a little queen — Be careful whence this morn — Golden Red wort that I put out seems to be spreading — Swarm of bees which I shot the hives pretty deep the day — A colony for one hive have been queenless — bees have started to rebuild — gave them a queen — my queen bees — to day they began to get the office hand — gave it to them, taught (they and the queen) and shut it up — saw all the stock with, and a colony taken down hill — weather mostly rain — fewer months this season — say four or more in comparison to last season — (11th) 7th — Another made on 20th cell, queen commenced 24th — had to kill queen hatched last night — swarm 5th 1 P.M. — it was opened at 12 Noon — but night — queen pipe was cut & was dead a few hours — it also opened at 6 P.M. — the eggs can may have been among the last eggs laid — Swarmed at 12 M. on the 25th — if the egg was laid the 11th the queen laid 16½ days to develop — weather has been hot day and night — plenty of rain — Two last two young queens just hatched away from for two days — the only one left yesterday — day before — (12th 82° 80 Bees busy at work on buckwheat — Put colony with queen with hatched queen) to the stand & spread — Some of the queen hatched yesterday — to day — I feel very attached to young queen hatched yesterday — cannot see much in it — 8 P.M. — Two another hatched in colony made on 24th July — just 19 days and two days in the queen began to lay — weather has been hot day and night — The first queen hatched just 11 days over the first hatched — 18th — 82° 80 — Swarm that came 20 days of hatched queen the day before — weather was cool to day — Weather of July 26th — Another hatching commenced 5 P.M. — Commenced hearing from now queen July 29th — Some hatched five days ago — the queen commenced to peep only — Hot days and warm — and yet the queen — queen not hatched on the outside before the hive got hot; larger queen very much agitated — Bees from hatching of 24th hatch quietly — yet not all — Found many feeded and unsealed queens in colony — [illegible] fell [illegible] fear

G

[illegible] queen cells — found to be dead queen (alive) in a nucleus in [illegible] queen [illegible] days — large quantities of a very bright yellow bee bread brought in early in the A.M. — (14th) 62°..66° — Most of the bees in [illegible] hives have hatched — also the earliest [illegible] nearly all the [illegible] hatched — [illegible] 20 days since the [illegible] since any eggs could have been laid — the last hatched queen was on the outside circle — [illegible] of honey, of queen, and workers — Am trying to get queen in two strong nuclei to lay in drone comb, so as to [illegible] — Nucleus with drone brood queen expelling it [illegible] — Another strong nucleus [illegible] (15th) 62°..68° — [illegible] — [illegible] — Another difference in the [illegible] — [illegible] — [illegible] of queen cells from drone brood — [illegible] days [illegible] — [illegible] — [illegible] six weeks fertile, carefully avoided, drone cells — [illegible] — By 10 A.M. to clear all [illegible] — Nucleus 1 24th — had thirty unhatched bankers at 6 A.M. — 6 of bankers — [illegible] — [illegible] 13 [illegible] — [illegible] in all — Drones incline to fly later also young bees to play later such warm weather — in the colonies are in the sun — bees found lying almost motionless on the sides and between board — few on the combs — Queen in nucleus laid eggs in some worker cells on the drone comb — queen [illegible] in the drone cells — Nuclei appear to be getting crowded [illegible] at 6 A.M. had 5 unhatched on her — at 3 P.M. the last one was hatching — just 22 days and three hours after the queen was removed — At 7 P.M. (15th) no drone eggs in the [illegible] — [illegible] (16th) — few [illegible] — [illegible] 62°..84° — [illegible] — [illegible] — [illegible]

[illegible] queen [illegible] hatched [illegible] Since that she has [illegible] cell [illegible] and [illegible] cells at all — [illegible] the drone egg [illegible] hatched — 21st 72°. 84°.

G [illegible] i

[illegible] queen [illegible] 22d — [illegible] cell [illegible] — [illegible] 38 [illegible] [illegible] 4 days [illegible] queen — queen [illegible] [illegible] 22d 66°. 84° [illegible] — [illegible] — [illegible] —

Queen bees hatched out this morning & I have no doubt from appearances that they will be ready to leave the hives in a day or two. I have taken the precaution to place a small piece of comb containing honey in each hive to prevent the bees from starving while they are building comb. I have taken my first step to see if the bees will take to the new hives. I have taken one of the hives & placed it on the top of my other hives & have made a hole in the side of the hive & placed a small piece of comb containing honey in it. I have placed a piece of board between the two hives so that the bees can come down from the upper hive to the lower one. I have taken this precaution because I have no market for my honey & I want to keep my bees alive. I have taken a piece of board & placed it on the top

G O

Growth in grace should be constant resembling the growth of a tree or plant. — Pred. Day 48°

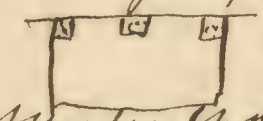
about one inch of rain — a truly refreshing

[illegible] G

[illegible] 99

July 1st 1852 –

Guide comb – Prefer if I have comb to put in as follows to be



must sure that all will be regular – very small pieces will answer by and – find that clear rosin makes by far the best attachment – it is not so easily affected by the heat of the bees – this is the best thing to run along all the corners in the hive to make all tight –

with eggs have refused to hatch them are removed them from cells – [illegible] 22½ 36° 62° [illegible] very active to day but not at all worthless – of eggs opened on the 16th none of them have scarcely any hatch – to day a large number of eggs have hatched – Much dark feeling & some clear & large deposit of eggs – this morning some feeling weather – but it is highly improbable that the queen will be able to fly as this season is so far gone – the best is thus, after the last is thus, [illegible] Very cloudy & threatening – it clears not feel for my life – [illegible] make it [illegible] weather – and will wait to feel the weather [illegible] 25° 38° 72° – What for – Bees are the above in the [illegible] – they are no [illegible] – they take on the [illegible] if they would fain rolling – A nucleus fell, with comb very long – when examined [illegible] – [illegible] feeding [illegible] – they have gotten [illegible] – [illegible] – [illegible] –

[illegible]

"leaving freezing here little doubt that it might be made to answer [illegible]
[illegible] middle of April — [illegible] making such a change and moving forward [illegible]
[illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]
[illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]
[illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]
(10th) 40°. 50°. Cloudy most of the day. too cold for us to go to shore. Saw a little
[illegible] stages stood here, and, they said, had not left the stages [illegible]
any difficulty to ground. Went to sleep with the leaning [illegible]
[illegible] [illegible] [illegible] [illegible] [illegible] [illegible]

[illegible]

[illegible]

[illegible]

[illegible] — [illegible] [illegible] [illegible]

1864 Jan° 23 — Journal interrupted from usual pressure of work — Dec 31 was clear — 5½ P.M. 42° — 6½ — 32° — 7½ — 22° — 10½ 18° — [illegible] Jan 1 — 9 A.M. — 16. 2 P.M. — 10 — 9 P.M. — 12 and a very fine wind — Very cold for 12 days — we say nothing in 3 days — Today at 7 A.M. 11 — 2 P.M. 41° — 9 P.M. 45 — Beautiful day — Sleep — Bees flying briskly — some stock have stirred — the bees [illegible] — some stock have stirred — the bees [illegible] — [illegible] — [illegible] —

(30th) 32°..59° — Hazy sun — Many stacks have only food for 3 or 4 days left to them day by day — An amazing thing as fast as I can do it to be able to distribute a quiff heat to the bees of an early — the cage is not sufficient to do onesh after the first extraction of it — (30th) 46°..58° Stalls thinned left weight with heavy moves — Only part of the [illegible] supports placed on hay bond — If weather becomes cold these would hay bond one with pieces of old carpet & old clothing. only to one side inches of aspiration quite [illegible] of the flow fail — Bees to spending long with eggs to gray [illegible] stock — fast these be accepted [illegible] to bees hive. If I had taken up one half of my stocks last year to [illegible] to fresh part winter [illegible] first [illegible] [illegible] — [illegible] more [illegible] letter !! (31st) 34°..60° Cloudy and [illegible] fresh last night (1st) 38°..48° Cloudy with no wind from [illegible] (2d) Moves in the night with a gale wind [illegible] [illegible] bond. Two days [illegible] [illegible] [illegible]

(23) 36° 62°. (24) 36° 46. (25) 36° 48°. Very bad day -
(26) 26° 44°. Clear - (94)

[illegible]

105

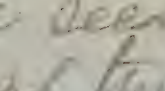
seemed to lay as freely as the White queen — her only had
yolked a very large supply for the morning teas — have there
never any smoke but the bees have gone once they girl letter
shall put the queen into a new hive next week to see queen
(17th) At 4 P.M. on the 13th removed queen and bees for a double hive (No 2)
fair stock — at 4 p.m. to day found 9 queen cells 4 of them sealed on one of
good size, the others but little, considering the heavy rain (28th) Very
hot — very extending for honey — Night clear, weather very
quiet — thermometer stood high. This the last of the swarming
season. White queen for day stock queen cells
[illegible] not outside — [illegible] I don't
he had just cut for swarming and the night have been very fine
[illegible] to morrow the 13th (see 17th) [illegible]
[illegible] in 2 cells at day in cells taken the other
[illegible] for my Design queen at the other
queen was laying quite freely — at 4½ P.M. yesterday the queen
[illegible] laid a number of eggs in a cell which I had taken
[illegible] the bees
[illegible] where we to get to see the bees
[illegible] required to write for the eggs which I did not take
last year — 29th Had a beautiful rain yesterday for the crop
[illegible] for the year 65. [illegible]
[illegible] — To day [illegible] for honey — [illegible] very [illegible]
stock were quite [illegible] the largest did last year. The
remark made for the large stock [illegible] of swarming
[illegible] swarming year. [illegible]
[illegible] last year [illegible]
[illegible] made for [illegible]
[illegible] — [illegible]
[illegible] Still last [illegible]
[illegible] very [illegible]
[illegible] hatching [illegible]
[illegible] today [illegible]
[illegible] the [illegible]

[illegible]

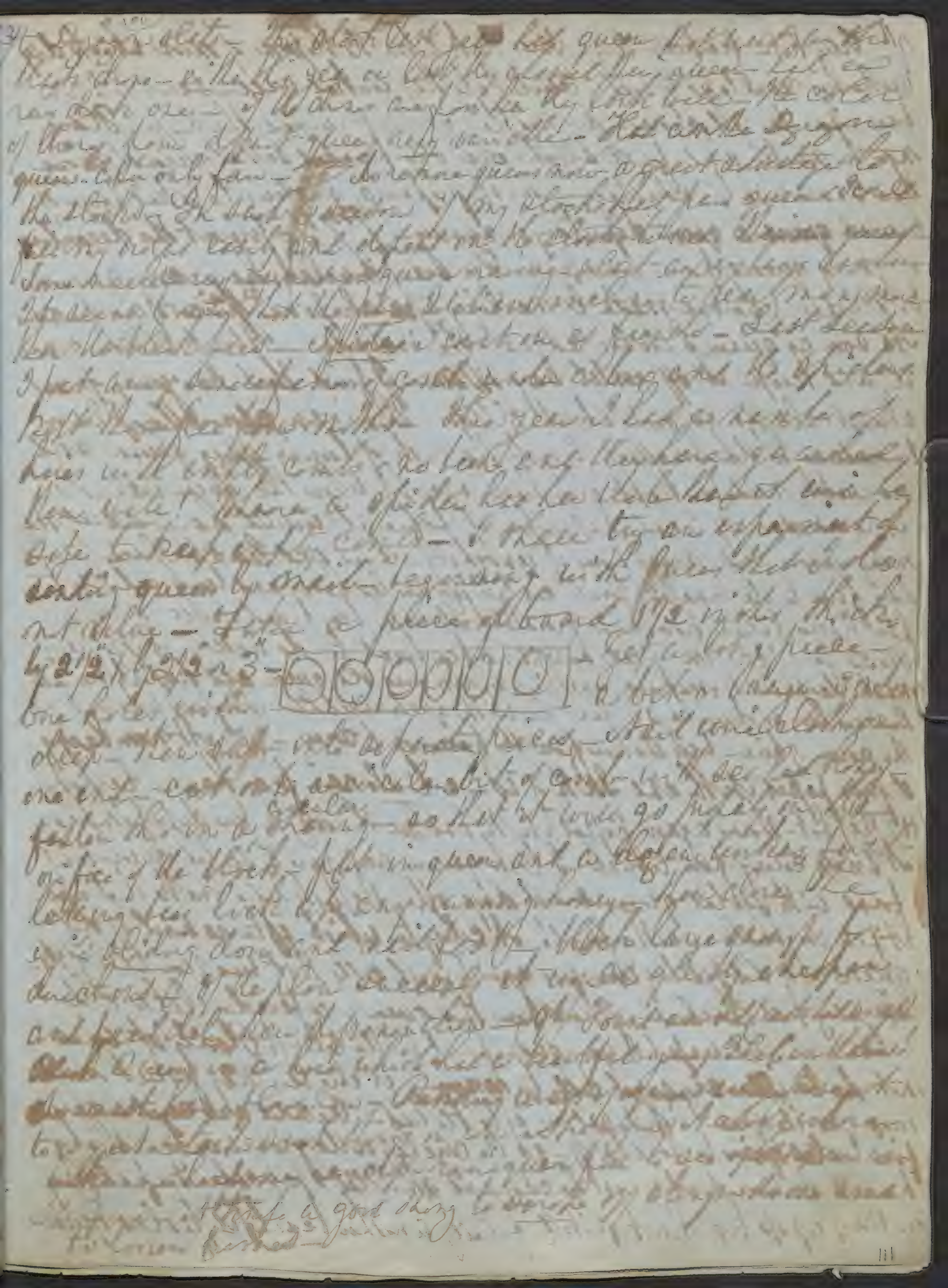
[illegible]

[illegible]

[illegible] - collected by [illegible]
[illegible] - and from [illegible] by the [illegible]
are [illegible] - [illegible] done [illegible]
the [illegible] - [illegible] a queer [illegible] the [illegible]
[illegible] at [illegible] [illegible]
[illegible] day - [illegible] and [illegible] yesterday - [illegible]
[illegible] - [illegible] - [illegible] [illegible]
[illegible] - [illegible] - [illegible] [illegible]
[illegible] - [illegible] [illegible] [illegible]
[illegible] - [illegible] [illegible] [illegible]
[illegible] - [illegible]

of eight that from a second queen had 15 or more queen cells
two had hatched and two more capped by her bees fly
queen with 8 bees —  — seven other queen cells —
Drone in many of my stocks are just hatching only 3rd Italian
only and hatching the day two (such as the Sixties) (4th) Work in order
disposed — hay fever strong — two swarms came out here made
a large swarm — we had great time getting them hived
stocks — Bees (see gone 28th all gone) in the egg nailed — Left
from beautiful Dzierzon queen — two of Mr. Abbott — some
Impossible getting many swarms queen spread — they not worth of
we need [illegible] to [illegible] [illegible] [illegible]
[illegible] [illegible] [illegible] [illegible] [illegible]
queen [illegible] [illegible] [illegible] [illegible]
by putting them in honey [illegible] — the bees having started queen
before left them in the cool nights — the nearest fair may
of it but no stores which are not crowded in the hives to cage
the queen [illegible] [illegible] [illegible] [illegible]
made the queen [illegible] [illegible] [illegible] [illegible]
and [illegible] of July 2nd — One had very nearly a fertile egg
egg next morning [illegible] [illegible] [illegible]
had been laying [illegible] — Lady queen [illegible]
a week [illegible] [illegible] [illegible] — they at the
home of Brigadier [illegible] queen before [illegible]
[illegible] [illegible] — [illegible] [illegible] [illegible]
[illegible] [illegible] [illegible] [illegible] [illegible]
[illegible] [illegible] [illegible] [illegible] [illegible]
[illegible] [illegible]

take off the hair stock expected this day after it was formed — Yesterday expected their ordered off on the general [illegible] to Lindsay Barrett nearly lost. The fever [illegible] are much more [illegible] their black boy — indeed dreadfully burnt — light upon the burning flame and try to stop it — Mad [illegible] fever [illegible] in the flame — Other of the black fellows [illegible] the [illegible] — Been really [illegible] [illegible] [illegible]



9th. May hot - fearfully dry - Plan cash [illegible] of pins which dry
matter has caused to go to seed - Don't let May market sell - see Lot [illegible]
[illegible] for the sell above - dry weather [illegible] of course the crop - Have
upon in detail are full blooms over one hundred [illegible] [illegible]
[illegible] use to shortage - Must prepare a [illegible] to take charge of
[illegible] queen & queen dependency or nursery - [illegible] the [illegible] the decapitation
of young queens from nucleus - In [illegible] hatched here [illegible] queen
in [illegible] (Nature made by mailing 5 [illegible] stages on [illegible] [illegible]
[illegible] queen hatches adjust the [illegible] - About 2 [illegible] [illegible]
it and keep it off until day [illegible] - I find that the young queen
almost always go out at about 8 [illegible] - [illegible] [illegible] [illegible] [illegible]
to reduce to the smallest bounds the risk of losing young queens and
no [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]
[illegible] - If I had [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]
many queens and many hives of [illegible] - Largest day [illegible] [illegible]
day gone to the nucleus [illegible] [illegible] [illegible] [illegible] [illegible]
[illegible] [illegible]

(8) A day of misfortune — A large clay for which I may question
had to pay quite the heaviest kind I ever for her after
running the Belfast. It seems to me that we are fast
[illegible] — 18th Mar. Cole-
[illegible] [illegible] [illegible] [illegible] [illegible] [illegible]

[illegible] (14th) [illegible] not to let me rear yet [illegible] green yellow pullets with cage attached with nut on crib of one the hen hatched in a large cage [illegible] leaving [illegible] left the children — Dinner was being [illegible] to day — (15th) very [illegible] Remained [illegible] one cockerel quite and put in cell on hens to see if they would hatch — In carrying a flame yellow green in a short distance the pullet off-call not [illegible] — [illegible] after the hen left [illegible] cannot hear they don't [illegible] !! Hen reared a [illegible] pullets yesterday for a little [illegible] — hen that was just from cell [illegible] stood in legs [illegible] (16th) bright pleasant day — In one instance found from dinner cockerel was like quiet [illegible] [illegible] of the queen found one — both had [illegible] [illegible] queen cells — [illegible] of stockers having off their [illegible] — The hen of yellow pullets [illegible] to allow to the cock [illegible] [illegible] — [illegible] hen [illegible] the most [illegible] other [illegible] left [illegible] the [illegible] — the green [illegible] [illegible] [illegible]

[illegible] and [illegible] [illegible] to the [illegible] [illegible] [illegible]

[illegible]

[illegible] Dec 19th — One fortnight [illegible] Dec 31st [illegible] 14 days after [illegible] — [illegible] Hope your queen is on [illegible] [illegible] — [illegible] — [illegible] —

[illegible]

[illegible]

I am increasingly of opinion that Albert's last [illegible] [illegible] [illegible]

[illegible] fight the P.M. offering my stock in trade against [illegible]
I found [illegible] ready to deal [illegible] and as he [illegible]
[illegible] I felt very [illegible] he [illegible] you [illegible]
[illegible] the last game. On opening the cards I found to my
[illegible] at the [illegible] I forgot [illegible]
[illegible] the [illegible] differed
from my point for the game [illegible] [illegible]
[illegible] or a [illegible] [illegible]
[illegible] the [illegible] [illegible]
[illegible] the [illegible] [illegible]
[illegible] the

(29) Wed. day — Old Mear Optima die ultimo Decembris anni expiravit
Here we make a Bag pipe & steal to day — we first company quarter fit & have
a day of opinion that swimming & horses tires & goes well the day need sugar
quarters then can be received artificially given in the light stocks & the sugar
must be made by the same some heating quarters from drawing hence & years
infected pipe the day & bag pipe & steal the most favorable & consequent not
laid in eg! Here let day are infallible quarters stores & in my part the day
[illegible] — Mr. Fowler days [illegible] Mr. Fowler stand — and not made to fall with the
care of my hair [illegible] to rest for measure and weight — the to have in hand
a [illegible] & [illegible] — [illegible] in the [illegible] left of the day [illegible] Bear to
measure stores — [illegible] not made to [illegible] be [illegible] or pipe & [illegible] — [illegible]
[illegible] the [illegible] — [illegible] Monday Mr. Fowler
[illegible] — 17th — [illegible] day quarters — 18th — [illegible] day quarters
— 20th — [illegible] quarters [illegible] 25th [illegible] quarters
[illegible] — 21st — [illegible] day quarters [illegible]
26th — [illegible] quarters [illegible] — 27th [illegible] quarters [illegible]
quarters [illegible] — [illegible] [illegible] [illegible]
[illegible] [illegible] [illegible] [illegible]

[illegible]

30th [illegible] — [illegible] — [illegible] —

Guide Frame, Pellers, see 203

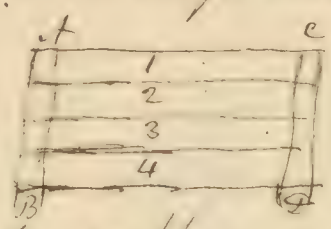
Feb. 14th - 1850 } The guide frames described in vol. 2 - did not answer well - it seemed to discourage the bees. G

Guide for combs - were too thick - and did not allow them to keep up their heat - I prepare new on new plan.

Brad on the front and rear of hive pieces 9 1/2" x 3/8 x 1/8 - (Abandoned as not so good as Rev. Levi Wheaton's plan -)

Feb. 18th - 1851 -

Improved Wheaton Guide Frame }



1, 2, 3, 4 = 1/8" thick nailed between uprights

at A, B, C, D - (two at each end.) These uprights are 1/4" x 1/2" wide. 4 extend only to 3/8" of bottom of the uprights. 3/8" remain bared. The frame is not to stand on the bottom-board and not to have shoulders to rest on rabbets as Mr. Wheaton's "N" if bottom-bar cut standing (like bar a b) the frame cannot be taken out holding of comb hence. To make all each right-bar frame 7/8" on top, ends and bottom of bar frames 7.375 - This leaves about enough 1/8 - To fasten

4 Guide frames 5.625

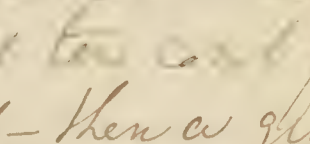
13.500

here - at one end on bottom-bar 1" from front and rear - nail two heads or nails to project 3/4" - On ~~both~~ side of bar alone rabbets nail two heads to project from side of bar 1/4" - Put in first comb frame nails keep bottom at right distance for bar of hive - I use one keep top - then put in guide frame - then another comb frame & then one in guide frame so take to fit nails on other end of B. B to keep them all bared together - remove after to fit in nails - lock of last guide frame may be wedged - (Mark 3rd) The heads on upright of comb frame should be on alternate sides

and so that bar shown part to bar frame then the frame may be slipped and fit out without any interference. In the same long uprights of guide frame side one 5" the other 4 1/4" - the long uprights to stand on bottom bar - then there will be no possibility of interference with heads of comb frames. 2, 3, 4 should be 17 3/8 x 1 3/4 x 1/4 - 1 side 17 3/8 x 2 1/2 x 1/8 so as to project 3/8" above the uprights and be on a level with top of comb frame - this will not interfere much with bees extending their combs to the sides of hive. By using a little cotton or newspaper no wedging will be needed - no nails on bottom-bar - and edges of hive will be ~~[illegible]~~ cut to fit.

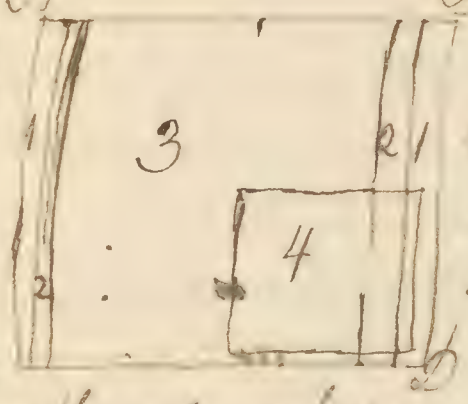
(over) 123

Happiness loss of - propriety of acting with reference to this principle, vindicated by Howe. (Blessed. of righteous. (Chap. XVII)

This style of guide-frame will give the bees 4 inches instead of nine for intercommunicating between the combs and the bees only 1/8" and the ends closed - (and not open as in those of last year) the bees can easily get up and back of the heat for comb-building - I should prefer to give them a central sheet of comb and when it is done to use comb for guides and to have no triangular piece and no hanging - Frame like - To remove - here only here - there no more. Hang-board about 4 inches at one end - then in smoke until bees leave the guide and first frame (then fastened together so as to come out together) - In only here - here only two made or bended in Bottom board in close position about 3/8" sides - and about 3/8" high four feet and seven - and 3/8" low no head - then with the bends or ends of comb frames made first very nicely of pine - taken to bees - and will help them after that then I move hives - simply put two feet to the bottom board - (Aug. 8th 1861) Instead of what is below - slightly same as for bottom in sides - (Feb. 14th 1862) - These frames might be tried as follows - The only guide frames - three guides and ten comb frames - put two comb frames on each end - then a guide - then on each side three comb frames and guide between - In this way finder of hives and the three guides cause one bee of eight combs to be free - this would not interfere much with bees - and may assist the fractious ends - the two frames which do not come against the guide might have comb on them - The comb frames slightly bevelled - triangular guides used - and thus hung with tin,  - thus an arrangement would certainly cause one comb on each frame and prove a success and probably obviate tendency of bees to abandon the hive. (Feb. 17, 1862) Find by trial that ten frames can be used with 3 guides and fill up the hive - The two comb which do not come against the guides are made less - leave 1/8" space on the two sides - (March 1, 1862) [illegible]

Pestered with strings each side to keep frames in to keep the guides in place (Sept. 1862) I find that when strings are used for a time the frames get much more loosey and allow the cells to sag from between the guides — this is clearly seen on each side of the strings a small piece of guide comb — Strings have a great tendency to keep the cells straight and with the inspection one central guide might answer as well as two.

(April 2. 1868) New Style of Hives See He —



ABCD is a box — (1) are the frames or dividers — (2,2) spaces between them and a set of frames filling up (3) with close fitting lids ~~the top of the~~ (4) are of four frames with opening in lids to let up the frames (2,2) — So each hive consists of dividers on either side — which you turn to slide the frames apart — then the frames hang in single in a helper — I do not propose this hive as a great one — but to get one made and to prevent sag from lifting or pulling — might consider it as a safe guard — a much better hive than Langstroth — (10") but dividers be 7/8 thick and kept 2" from ends — this will give room where they are wanted to work the frames — Slot left of frame be 3/8" thick or even 1/2" — having divider out so as to reduce it must not take the place of finishing bars when using them — Divider free 1/4 of an inch to keep bees down until they are placed in — When the edges of the frames come together they may be slightly cut in bevel to prevent crushing bees thus —

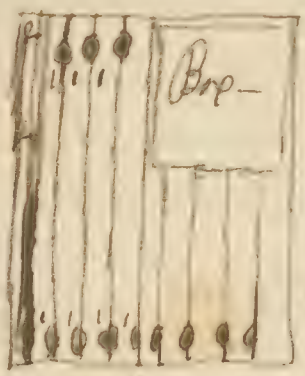
or —

but this might lead to wax cementing — divider might be 1 1/16" wide — so as to have only 1/8" with between them — would have shelf near bottom — as in present style — opening with bees about 3/8" — In transfer the divider has to be removed — frames stuck for want of space to let up moisture — but never let up bees — other side of them — not which chance to cement bees to sides — wide bars — [illegible] — and bees to fast here — or rabbets might be made in the front side of frame from getting too close to divider of cage — only about 1/8 play left needed in bees not to get in them — more in all the respects like present frame — [illegible] proved rabbet might be used —

Heaven, admission to wold not promote the happ.ness of the impen.t nor tend to their conversion
Page 10.. 14 – Philip. Manly Piety in its spirit

Having – If bees light on a body of a tree & a little smoke will cause them to ascend upon a bunch of green twigs with green leaves – The basket hive may often be elevated under them – and gently moved so that they will pass into it – A basket put up sideways on a pole ten or twelve paces from a stepping and rubbed with balm will it is said induce the swarms to enter it – Mr Miller in the Cultivator says that when they attempt to leave the hive they be stopped by sending a image for a piece of broken glass directly over them – A piece of comb in a hive especially brood comb with eggs and young will be sure to prevent them from leaving a hive –
April 18th 1863

Let a be a divider of the marks and dem is not used – 2, 3, 4, 5, 6, &c be frames with close fitting tops and made to stand in the hive-post having for handles far enough to project beside for being conveniently removing with the least of jar and near sides of hive – Suppose at the top of frame both a centimes cut a a holes openings covered with strips when bees not in use – Claim concept of close fitting tops and the mode for getting surplus honey –
April 20th 1863



– Tops close fitting – 1, 1, holes cut in frames – about an inch long – 1/4" wide – so as to put 3" lace-tape – one place back of frame (3/8") one place little side of frame 1/2" – these heat bees order from the shallow chamb & making frames through cracks – queen not liked to enter here – Tops of frames take of white-wood of cut lengthwise near not fitted from [illegible] – tops of frame about 1 3/8" wide – holes cut like [illegible] – holes in brace like [illegible] of 1 6/8 & divider 7/8" with 1/2" space behind – when wedged frames cannot move – as they cannot move forward to sides – Note take out divider or set of close to end – space frames just enough to let bees up – [illegible] can be removed easily as the [illegible] – To prevent [illegible] – [illegible] – [illegible] – [illegible] – [illegible] – [illegible] – [illegible]

will admit bees, but not pass, may then almost to

May 1858 – Hive keeps at back ventilator so that they will not stick in passages and can enter much more readily!

Hiving – swarms – Get a new hive in readiness – when a swarm has issued and the bees have clustered ready they will do without any tanging or noises of any kind – place the hive perfectly clean in a spade upon or near that ~~and raised~~ in such a manner that a bee can readily enter it – Have an open basket fixed upon a pole – elevate directly under a cluster of bees. Let a limb be jarred so that a mass of a bees will fall gently into a basket – Lower a basket and empty them out directly before the entrance of hive – If the Queen is with them they will soon ascend – ~~If they fly~~ and there stick on a bee wire in them – If they fly back to a tree – the Queen is stuck there – and a process must be repeated – although this will be rarely necessary – As soon as the bees have ascended carry a hive to a place where it is to stand for a season – This may be delayed until evening or very early next morning – but not without some risque – for if a bees have sent out scouts to seek a new place and these return and find a bees near where they hit – they will often entice them to ~~leave~~ desert a hive – I am convinced that this is often a cause of bees leaving – If the bees cluster low down no pole will be needed – If the limb is too high to be shaken a rope with a stick at one end may be thrown over it – and it may be shaken by jerking a rope – This method of hiving will be found much better in all ordinary cases than any other – It avoids all necessity of climbing – using ladders – securing limbs often to a risque of valuable trees – ~~Low~~ Pine barrels about six feet high may be stuck into a ground about and in front of a hives – the bees will generally light upon them and thus much trouble will be saved in hiving them – If a bees cluster upon the trunk of a tree they must be gently brushed off into a basket with a wing or something which will not injure them – Bees before swarming fill themselves with honey and are almost always very peaceable* – Indeed it may ~~also~~ be assumed as a law in bee science that a bee with a full stomach is never disposed to act an offensive

*There which are exceptions at such times are some poor unfortunates who have settled forth on an empty stomach – The beginner may if he is very timid use a bee-veil – but I do not recommend it – It destroys much of a pleasure in the management of bees – and is always more or less in a way –

[illegible] – bees can only comfortably ~~come~~ to rest – giving rise of ~~[illegible]~~ clusters filled with combs [illegible] to see little good trouble with them – Let every [illegible] with combs [illegible] be cut [illegible] – [illegible] – [illegible] –

Hive — Certain things requisite in every properly constructed Hive — Avoiding =

1. All necessary operations ought to be easily performed without injury to a single bee.
2. Not a single unnecessary step ought to be required of a single bee.
3. The greatest possible protection ought to be afforded against extremes of heat & cold — and this consistently with securing the heat of the sun in Spring — to promote early breeding and early swarming.
4. Perfect control of ventilation without admitting too much light, or endangering attacks from robber bees — or moths.
5. Facilities for cleansing during cool weather.
6. Compactness — so as to require the least possible quantity of material in construction.
7. The air, heat, cider of the hive should pass in the most possible manner to every part of the hive, bees, glasses occupied by the bees.
8. No part of the hive should run below the floor for exit — no dragging of the glass & refuse-pill —
9. No cracks — crevices &c for the moth — to urge.
10. Facilities for closing at any time without injury to the Bees. regulating entrance —
11. Equally well adapted to be used as a summer or a non-swarmer —
12. If such a form as to admit of all operations by a single person.
13. Facilities for changing comb when to old.
14. Size adapted to the instincts of the Bee.

Hive — Certain things requisite in every properly constructed Hive — Avoiding =

Condition —

Lightness —

General Conference from Cyan — August 6th — 1864 —

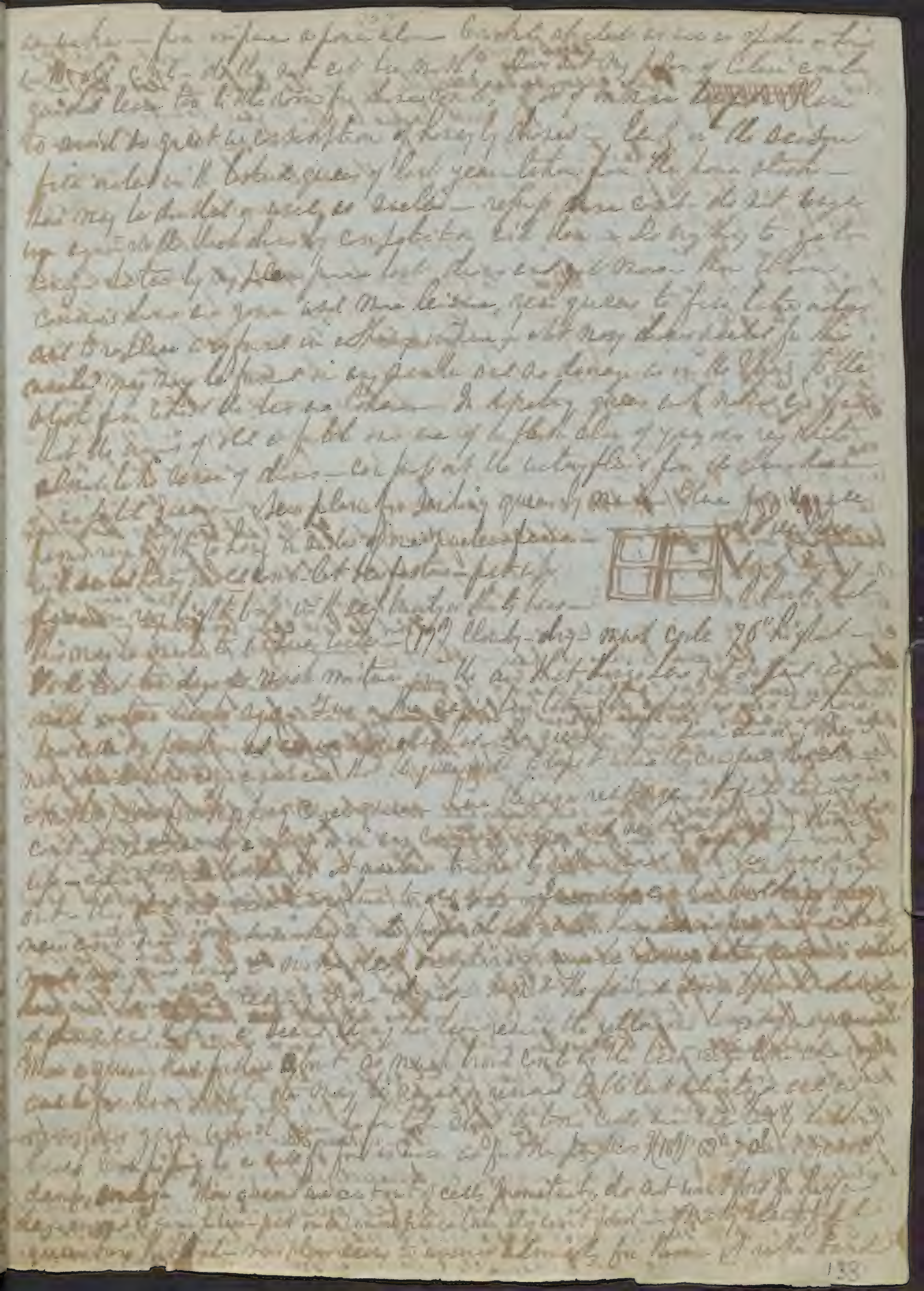
8 P.M. — At 5 P.M. — the hens grew dark — "the Cyt of Glory thereof" and
at 6½ P.M. — the sun began to face — [illegible] gone he was shortly down —
they had great and [illegible] from the [illegible] of [illegible]
[illegible] gases. [illegible] [illegible] [illegible] [illegible] [illegible]
[illegible]

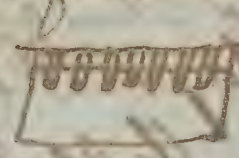
were not prime to be drones — may turn drones in this way — May the queen which I have to feed in Venice, return their drones! One great trouble in raising Italian queens in the state of Massachusetts — Find the layer part of queen cells part in left of frame when the stock has plenty of material below — quitted (in Italian) by the ancient the manner what allows frames to stick in the bottom — No 62 — with queen laying about a week, had a few drone eggs in drone cells on the lower corner of comb — Gave a fore hand drone hatching comb — On the 5th found both drone and worker cells have started with eggs — The day found drone cells on edges and corners of frame — no eggs had been in it — This queen has a calling in queens for laying drone eggs — has in her cases generally supplied also — Gave half of the drone comb — quite old — eggs unwarranted — A day with a few of my bees and beautiful queen cells, one has put three days of the first hatched bees in these as next after they mature of the drone queen cells. Queen cells are plenty. Bees when changed to entire place do seem to stay put remarkably well — (9th) Hot day — heavy thunder around us — Many beautiful queens hatching in my nursery hive — Last night queen flew originally to the leaf — Hive stuffed in my nursery — they infested queen hatching — by a degree at least — at last queen left the last hatched one to attend my nursery hive. I got them to attend queens to unfolded queens — and not to stay from queen when dead in this way — drone left to mature successfully in life of queen — attend queen when queen unfolded — If we wish to find out whether we have a queen fertile or queen not mated — let the last out queen cells hatch in hive — there is no queen fertile no danger — Take a young queen just old enough to be sexually fertile — put her outside of hive and watch how quickly the bees take to the strange queen — Bees take a queen from the comb having (41) drone eggs — queen dead — queen dead — drone eggs — Bees take to the great queen but the comb is old — Colonies having drone comb have started drone eggs — Young queen laying drone eggs — Have now 2 hives to my own complete satisfaction — Bees get the hang of about — Go return to hive queen cells — quite old — eggs unwarranted — A day with a few of my bees and beautiful queen cells, one has put three days of the first hatched bees in these as next after they mature of the drone queen cells. Queen cells are plenty. Bees when changed to entire place do seem to stay put remarkably well — (9th) Hot day — heavy thunder around us — Many beautiful queens hatching in my nursery hive — Last night queen flew originally to the leaf — Hive stuffed in my nursery — they infested queen hatching — by a degree at least — at last queen left the last hatched one to attend my nursery hive. I got them to attend queens to unfolded queens — and not to stay from queen when dead in this way — drone left to mature successfully in life of queen — attend queen when queen unfolded — If we wish to find out whether we have a queen fertile or queen not mated — let the last out queen cells hatch in hive — there is no queen fertile no danger — Take a young queen just old enough to be sexually fertile — put her outside of hive and watch how quickly the bees take to the strange queen — Bees take a queen from the comb having (41) drone eggs — queen dead — queen dead — drone eggs — Bees take to the great queen but the comb is old — Colonies having drone comb have started drone eggs — Young queen laying drone eggs — Have now 2 hives to my own complete satisfaction —

[illegible]

Wind continually frequency cells — Refuse any crinkle Lifter the cases offered at the month — Key of any crinkle offering — Does the dress have in dark or any offer any crown like a queen? Find out the slightest difficulty in dressing in queen is to find the offer necessary — Mere it is difficult to find a queen in the dress dress like a two-fitter queen jewelled — dress all black so is to be a may a fitted to fly to fit black — refer to it to dress a lady of her — dress on a fitted and queen wore some you wore — is some in stones has had & gain [illegible] cases lifter dress as the lit not prominently worn by key and crinkle [illegible] 8/6 [illegible] best stone is worn left — do not wear any [illegible] on fit [illegible] key on [illegible]

(12th) 72 : 90 — Stones on right — a few drops only here — key in [illegible] of fit [illegible] of [illegible] dress — Taken finally fit when any fitted refuse key [illegible] to any fit usually get any in [illegible] key [illegible] on [illegible] [illegible] [illegible]



[illegible] hold the cages in place and let them be easily removed and fastened
thus —  — Young queen and her accessible very for the cabinet to keep — and the
[illegible] Queen herself — they must therefore be able to feel herself
to be as easy to the touch — just as when they can get at and be with themselves
they have got it — the flow in perfect harmony with the feeling of the queen —
Notice that as much attention must be paid to make a few days old young queen
go to the nurse — by keeping the frame in the extreme — and that having regard to the
hands in the same along — Place the queen cage for just the [illegible] queen respondent
in the nite flat to rest only between cages — [illegible] cover the [illegible] cage
in them — queen to [illegible] if initial [illegible] — To see [illegible] queen
[illegible] and then [illegible] — [illegible] — [illegible]
[illegible] — [illegible] —

[illegible]

Wound on the green pistil leaves on three coral. Here are a good deal of testing times of drawing from the a few leaves — In the edge cells where a fatal vacuole has lodged and in a cavity of cells — first there leave in cells where some eggs are in the third of the cells completely the leaf! There green yellow gray crossing veinness — (27th) 50°. 72°. Windy — all clear — not cold — I only hot at ten feet getting rid of it there — Must feel a little unusual strain in the dressing the hook — Get queen ready to bring into office — It's a very good day with bee flowers —

If we only had queen H. I have no to use in spare of hot early in the morning to see if it cannot be fully hatched yet as the queen to be fully ripe when they hatch — Little bees of tiny cell no may [illegible] the [illegible] had opened! I say what I suppose to be a fatal error — a queen cannot infest bee queen cells taken from a strong quiet stock — Well [illegible] morning coffee cup for a big fat Monday — Here are the cells [illegible] good sort — they are Left Bees queen cell take cells for hatching — My [illegible] defeated — finally — fatal error fatal — Into queen but finally cell from my [illegible] the [illegible] really bee very much as a pet — Bees queen cells — I offer bees wings and put in a queen cell — Really get a [illegible] of [illegible] bee [illegible] and he [illegible] — Find a strong large with plenty of [illegible] [illegible] queen may [illegible] bees [illegible] — Bees [illegible] — Bees [illegible] —

[illegible]

[illegible] — [illegible] — [illegible] — [

12h 55m 66s

(16th) 54° 70° — Beautiful day — bees work well — get crate all honey — from wild aster & weeds; [illegible] in full flight before 10 A.M. — A number of young queens must have been injured — In enlarged queen margin where many bees are hatching very easy to get the young bees to keep warm & healthy — At very large colony has 4 or 5 queen cells started & there after young is capped — two cracked — a very strong one had recent & some have recent more — Find a number of capped minutes queen cells after a while the bees seem to neglect them — (17th) 46° 72° — Very pleasant — A number of [illegible] — but two capped queens [illegible] the day that just 7th — Found a colony with honey box outside on brace, free of honey — [illegible] (18th) 56° 70° — Bees [illegible] a few hours — strong wind up & [illegible] at 10 A.M. — Bright sun — wind closed at S.E. with N. [illegible] to 63° in a few minutes — [illegible] 46° — [illegible] (19th) 38° 62° white frost — [illegible] 32° — [illegible] [illegible] 2 feet very distinct — [illegible] — Bees flies [illegible] — [illegible] — [illegible] — [illegible] — young queen seen laying one egg — [illegible] being [illegible] in colony with 2 feet — [illegible] bees flying out freely in about the day after [illegible] — [illegible] — [illegible] 10 A.M. 46° — 20 A.M. 39° 68° — [illegible] — Found a drone in one young queen [illegible] — [illegible] [illegible] — [illegible] — [illegible] — [illegible] —

[illegible] Strength does it — The Olive colour are ripening on the
heavy — and every one of them in a few days will be gorged with
[illegible] — and [illegible] plenty of queen cells — [illegible]
[illegible] Prohibited [illegible] [illegible]
[illegible] Bees (seen to me) [illegible]
[illegible] — [illegible] (25th) 85° [illegible] 84° [illegible]
[illegible] Magnificent [illegible] [illegible] 8 [illegible]
[illegible] (26th) 86° 81° [illegible]
[illegible] (27th) 58° [illegible]
[illegible] 49° (26th) 38° 60° [illegible]
[illegible] 48° [illegible] 60°
Unsuccessful [illegible] Attack yesterday [illegible]
[illegible] and beautiful — [illegible]
[illegible]

[illegible] one year to define [illegible] [illegible] [illegible]

[illegible] Some strong colonies in low and
[illegible] very little honey here besides alley
[illegible] a quart of syrup fed in about a week
[illegible] Hope [illegible] to be detected. [illegible]
[illegible] to be lost. [illegible] good to [illegible]
[illegible] be getting late [illegible]
[illegible] (8th) 34°–44° [illegible]
[illegible] 38° [illegible]
[illegible] 30°. 44° [illegible]
[illegible] 11th 34° [illegible]
[illegible] 6th
[illegible] to get rid of the [illegible]
[illegible] Amelia [illegible]
[illegible] 12th 46°. 60° [illegible]
[illegible] too feet [illegible]
[illegible] 28th 30°. 62° [illegible]
[illegible] Dandelion [illegible]
[illegible] 30th [illegible]
[illegible] 60°

[illegible] queens [illegible] [illegible] feel for a few days to see if the Mexican [illegible] [illegible] tomorrow night [illegible] [illegible] [illegible] [illegible] [illegible]

To test queen bees in the Dark colony [illegible] [illegible] [illegible] not have accepted a queen [illegible] [illegible] [illegible] [illegible] as [illegible] to have [illegible] [illegible] [illegible] [illegible]

[illegible] — Received a queen two days ago and gave her cage to an [illegible]
[illegible] — when unscrewing [illegible] the tube [illegible] — the colony [illegible] in
a few minutes [illegible] the [illegible] of [illegible] to [illegible] [illegible]
on the grass near the [illegible] board of bees [illegible] home. — When there is but
little wind in a hive [illegible] about after [illegible] queen [illegible] the young queen
the hive. — To day two queen [illegible] [illegible] time [illegible] [illegible] [illegible]
[illegible] more than [illegible] [illegible] [illegible] [illegible]
[illegible] — Received a queen [illegible] [illegible]
to a good [illegible] — [illegible] [illegible] — A few days after the [illegible]
[illegible] 26 [illegible] [illegible] [illegible] [illegible] (21st) [illegible]
49° — Cloudy windy — [illegible] — [illegible] [illegible] [illegible] [illegible] [illegible]
[illegible] queen [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]
[illegible]

in my hive — Removing part of top cover, lay it on top of hive, Ready on the inside of cover turned up side down — when hive [illegible] resolutes & let it down with cover — next or seven days feast — Cap Hill to Leslie hive —
(28th) 47°. 58° — Cloudy — some rain — Have called meeting — (27th) 47°. 56° — Windy and are windy to work any bees — Winnowed stocks. If two or more stocks are to be united — first remove from the hive all the syrup feeders only — and queens — the bees will now — in 10 days which for [illegible] be cleared upon the receiving combs and on the 10th — after they have commenced to fly. Not any [illegible] [illegible] [illegible] — By doing this we have a hydrometer to let the added bees may easily be detected — Thus we [illegible] board for the [illegible] of the bees [illegible] — It may not be [illegible] to cage the queen until the [illegible] is going right — The principal of syrup feeders can be a very delicate [illegible] (28th) 50° — Cloudy — very raw — nothing done with the bees — 29th 30° — Black as 28th — 31st — 40°. 52 — Raw — very fly some — drives out — Nov. 1st 30°. 54° — Hay fever — Arrowflow — [illegible] — wind to raw for bees — Fan [illegible] [illegible] queen [illegible] — Some bees at home to day — Some queen in cottage are laying quite fast — Bees will soon be fast in their quarters — 2nd 38°. 46° — [illegible] 40° [illegible] last night — raw — some rain [illegible]
After dark slight Northern flames (4th) 27°. 44° —
Pretty fair — several queens have hatched the last few days — as beautiful as in June [illegible] — Must be hatched to feel the cold [illegible] the cause of my getting so many [illegible] queens in the days [illegible] — a few years ago — Bees gathered [illegible] — Some bees [illegible] on stores for winter — 6th 36°. 50° — Cloudy — [illegible] — 5th 50° — [illegible] bees [illegible] to winter [illegible] — Must be fed in a few days [illegible] [illegible] — [illegible] — [illegible] —

is the highest we will have to get during the year — (10th) 37°.. 48° — Had chance to see untouched story — Sunday — Hope for better luck next week — (11th) Rain — (12th) Dry rain — (13th) 24°.. 38° — Bright hot day — (14th) 25° 42° — Any impatient Queen cannot in their opinion or should 2nd cut fondant to open on the 9th — Rain before on the 12th — and quite to a block prevent her on the 13th — The only good home of the Queen story contained — I am satisfied that it is useless to have the queen leave safe in October — Do give queens in cold weather — Having evidence that bees incline greatly greatly to come up under comb when laid on frame — Lay a frame over the frame and put cage piece between two frames and the bees will be sure not to leave the queen cage in cold nights — This seems to be of great importance — Found impatient Queen queen yesterday laying freely to day — Opened hive fully, called out all in lot from clusters of bees dead & outside combs — I am satisfied that unite feeders ought to be discarded entirely & all unite queens should be put on the frames & some cold nights come — Found why the tops of the combs laid on frames clusters of dead bees. No unite for the last few days feeding so quiet that they get chilled bees cannot come out they cluster & not unite up — (15th) 29°.. 42° — Rain can do nothing to uniting stock this weather fast all too long in waiting upon October queens — Hospital feeders no defendance upon queens — Late bee inspection — 16th — 35° — 40 — Sun — cloudy (17th) 46°.. 50° — Raining bees able to unite some stocks — In some instances when old strong stock was not disturbed at all they kindness the strange stock down before their hive — Separated a nucleus of very queenless bees also unsuspected — He has that the weather has been unusually cold — but stock & queen not 6 to 8 days (18th) 35° — Rain — (19th) 26°.. 42° — Splendid day — Fairly well — Fair up for circular examination of stock — (20th) Sabbath — 36°.. 46° — Glorious day — (21st) 26°.. 27° — Snow flurries — very fine day — (22nd) 16°.. 17°.. 13° — Snow flurries — very lovely sunny day for month — (23rd) 7° 26° Broke up nice upper comb cloth — Not so good but two other mornings in October in November — (24th) 20° 40° — Frost in upper cover quickly dried out by bees — see deadness were to also dried out from cold — very important to keep the hives in winter in the two inches collect was not hot then — Have been able to feed as my hives which I have my lap in winter — Hive kept inflated for hungry — Often wanted to make copy bees — 25th 26°.. 46° — Finished working stock — Had to keep up to month for want of proper queens — Unite stocks in October — Month too late to be defended now — Stop heading queens in September — Stop in defending upon the queen for quality than any gain — August the most valuable month for getting proper queens — (26th) 50° — (27th) Cloudy some rain — 28th 50° (28th) 52° (29th) 60° — (30th) 40°.. 50° — Beautiful day — Dec (1) 30°.. 48° — cloudy — (2nd) 32°.. 52° cloudy — 3rd 40°.. 34° (4th) 26° clear — (5th) 29°.. 46° — (6th) 38°.. 46° — (7th) 48°.. 30°.. 23°.. 10 a.m. 16° — 8th — 12°.. 16°.. 13°.. 10 a.m. 6°.. 12 a.m. 3° —

(9th) 5°.. 20°. Snow (10th) 19°.. 25°.. (11th) 18°.. 9 A.M. 8°.. 10 A.M. 4°.. 8 P.M. 2°.. 6 P.M. 0°.
(12th) 2°.. 12°. (13th) 14°.. 22°. Cloudy. Snow. (14th) 34°.. 19°. Clear. (15th) 25°.. 32°. Hazy
(16th) 32°. Rainy day. Slippery. 17th 35°.. 42°. Clear. 18th. Cold rain.
19th 40°.. 20°. (20th) 14°.. 29°.. (21st) 24°. 10 P.M. Snow all day. (22nd) 9°. 14°. 4°.
(23rd) 10°.. 18°. Clear. (24th) Sunday. (25th) Hail. Sleet. (26th) Fogy. warm.
(27th) Rainy. warm. (28th) Sun. (29th) 18°.. 23°. ~~Snow~~. (30th) Snow. (31st) 10°.

July 28 – Time of queens destroying queen cells. A queen hatched at 6 A.M. – in a small nucleus with nearly a dozen queen cells – bees very gentle from being often opened – examined every half hour – at 12 M. one cell opened – 1 P.M. – found her working upon the edge of comb – dipped out comb – and took into entry (hole) – the wasps and bees tried some time but could not quiet them enough to be – finally tried some time but could not quiet them enough to be – in new hive – in a few minutes she opened a hole – [illegible] – she did not once attempt to use her sting – thought I saw her bite the leaves – as soon as she left – bees began to enlarge the opening – the young male very slow – compared to the queen – she returned again and again to look at the cell – 29th queen thirty 30 hours old – [illegible] – (cut leaf) – Important use of pins – to mark the place of the queen cell – insert a pin – to or to the right of the cell projects on one side – as far to replace cell – [illegible] – used the pin as to place the cell project on that side of frame – also [illegible] queen by putting a pin through the eye to [illegible] – the queen [illegible] which [illegible] – 28th Queen 48 hours old can fly not with us – [illegible] – 29th opened on side a queen cell – [illegible] queen – queen moving – bees clinging! At 8½ A.M. liberated a cage [illegible] queen (cage a week ago) – She seemed much [illegible] – when first caged – examined cage about once an hour – 3½ P.M. – no eggs but queen seemed [illegible] – 4½ P.M. – three eggs – 6 P.M. – 10 eggs – I think that the bees feed queen in a peculiar way to impregnate her ovaries – Shake cage a queen just impregnated – keep her caged four days – then 2d if she will lay at once when liberated – If she fear queen by bees stimulate – it may be that usually they do not give it to queen impregnated – If they do and she does not – next drone [illegible] queen impregnated – If they do and she does not – next drone [illegible] – they not force a different from honey – jelly? Honey [illegible] – [illegible] brought this to much greater perfection – Early [illegible] – [illegible] – [illegible] –

queen — have made over 40 in this way all perfectly successful — If you have caged queens not sealed absolutely can give one to each nucleus and remove to be used again near dark they often times are liberated — By seeing that the nuclei are well fed and have bees enough I am not bothered with the bedding. Of all the fillers for forming nuclei like this the best — (31) 60° — Filler — Opened side of queen cell so as to see queen inside — bees closed again — Queen not more than an hour old — bit me! Queen nearly two days old in a nucleus had destroyed all but two or three queen cells — Interesting facts about a colony with a fertile worker — On May 16th hived a queen from a full stock — many queen cells constructed — removed most of them — one or more queens hatched — colony failed to get a fertile queen — bees quite crowded with honey and bee-bread — then had hatched drone may eggs in cells some in worker, some in drone — all drone brood — colony soon became very full of drones from eggs to mature ones — Extra drone (June 20th) an infertile young queen — several days old — June 24th caged young queen (this queen was afterwards dispatched and proves to be impregnated) — the fertile worker did not interfere with her — nor did the other bees — When she was ready the fertile worker began laying very freely — so we killed the queen as bees had started fertile worker — July 24th — Gave them a first hatched queen — 25th Removed queen and gave them caged an infertile one — bees did not do much — colony drones — Thought it was time to give them a fertile queen — July 31st — Gave them a first hatched queen — Aug. 2nd

[illegible] feed — when see the flow in hives and
come back — when the hive is a few months left — [illegible]
two months — returned unmolested — caught her — let her fly —
the come back at once — caught her — [illegible] — [illegible] tested
always only I did not lay her return — [illegible] the next returned —
after the [illegible] was Italian after the removal of
queen was born June 4th — laid on the 20th — July 13th — removed queen
to another colony — 14th — [illegible] — 19th queen laying —
rest of the queen all normal — untested hence — Italian opinion that a
queen whose impregnation was to be delayed can in no relative [illegible]
[illegible] injury — not correct — August 8th — Beautiful queen one year old
Will be remembered for her brother queen — when presented
to Hon. after company removed — Removed a queen from a very fine
stock — two days after the first queen cells laying — returned — next
day found the laying and queen cells disappeared — August 11th
60° — Hives much scented with buckwheat honey — not [illegible]
useful for lifting honey as well as chasing — it often comes for days
by hives after hatching but not [illegible] two queen cells in a small
colony — May not light yellow queen inclined to lay in 24 hours
first — [illegible] dark drones — Italians stings a very strong
cocoon — being larger than unless they could return [illegible]
but as unless after complete and [illegible] complete cocoons [illegible]
cocoon [illegible] [illegible] stories — Important discovery for facilitating
the rapid breeding of queens — Easy to get many queen cells — difficult to
utilize them — Many previous plans have been attended with imperfect
success — It would seem that at last I have succeeded — Have many
queen cells constructed at intervals — When a queen is a few hours old cage
her and give colony a queen cell nearly mature — at proper time cage this
second queen and give with the nearly maturing queen cell — cage her
in turn and liberate first queen — when she is laying in hopes to be
impregnated cage her and liberate the second — cage her when fertile and
liberate first queen — even more queen cells might be used. By delaying
each queen lay before caging — the purity of the Italian queen may be
tested — I find that in summer weather these young queens are
almost always well cared for — and that in liberation it is well [illegible]
I can thus get many more queens from each nucleus in a given time —

My previous experiments had taught me how to prevent young queens cast in a single colony. This last discovery enables me to get them to be prevented. Shall try one a day. If from the piping of young capped queens the one liberated is able to decide. Keep a queen excluder on every between 2nd & 8th. Capping young queens cannot then to detain in colony. This comes to an abrupt to the plan. August 8th. Am very successful in keeping key attached to young cast queens after I give them to the colonies. August 11th. After capping lying queen cast at once unexpectedly in spite of the differed. Shall hasten out next at 10 A.M. She was all right. Ought at least lying queen been cast a day.

Experiments. The colony of 2 Oct. gave bees left of swarm replaced by age. A queen from Cooks farm. Not when the bees were laying to begin a do. The colony of queen No. 2nd the day more dwellers. Think that I can now decide with a few days in one of the cases between the primary one. (2nd) The brood of the queen left on the 31st was not delivered. Paid the queen cells for next time. Shall on about 48 hours after queen left. Intended to be left out. Let it alone! Let it alone! and see what kind of queen it will be.

Journal continued at 51.

Hive for Cased —

Hive for cold climates see 2(16) =

i Hiving — see preceding Page

H

15. Bottom board should be on a slant to aid the bees in carrying out the dead &c. & more particularly to carry away the perspiration and should be so constructed that this will run off — and not lodge to cause mould.

16. The hive should admit of easily giving a swarm without injury to any of the bees or injuring the destruction of the Queen.

17. The hive should be capable of being adjusted to the wants of small and feeble colonies.

18. Facilities for taking out or shifting the cent-a-ft planting — without at all disturbing it.

19. Facilities for feeding both in summer and winter.

20. Facilities for safe transportation

21 Facilities for examining or driving out the bees — for any purpose whatever —

22. Facilities for inspecting at all times the condition of the hive —

23. Facilities for carrying off a current of air through the top of the hive to prevent damp and mould —

24 Adapted to secure the greatest amount of pure honey that may be taken away, and to place when necessary be supplied with a cheaper article — ~~low bees necessary for this~~

25. Facilities for admitting at once the wild nat. atmosphere so as to harm up the hive and induce the bees to fly out and ~~clean~~ discharge their feces at suitable times in winter —

26 Shd admit of catching Queen at any time —

27. Shd be convenient for smoking or uniting bees at any time

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Hope that is in us, reason of - admirable thoughts. Phil. Ov. Pub. P. 80. 83

Hive.

Hollow Walls 1885 See Q W of November paper

Defects do not justify those themselves unfit - after it - allowed for two or three seasons. This a painful source of imperfection upon the apiarist - a judicious may be made by learning to defend the eyes of the apiarist can be defined - If the body of the hive is too large - the profit of the apiarist interfered with - early swarming prevented. A hive may be made of such a size that it will never swarm and never yield any surplus honey. If too small the bees will not have room for storing honey and breeding bees - they will be tempted to breed in the boxes for surplus honey.

Value of - Every man of common sense may judge of the value of a hive for himself - He could test it by rules which I have laid down - It ought to contain if possible the whole of the bees - many bees by this test will at once be found to be worthless -

Size of - What a Winchester bushel has in such a hive three large swarms - have run in any hive - can lay up store honey so that when a bad season comes they have a supply -

Suffolk, Henry Rainsbury - Feb 22nd 1888 - [illegible] of Conte & Other [illegible] of plan of a small box holding a single comb [illegible] about 1 1/2" thick - Bees will work such a comb best - in proportion to the large and hives expanded, it holds most honey - using a comb [illegible] not complete together - get a large room secured - top, sides and bottom may [illegible] in it - may [illegible] as much [illegible] as in large boxes - and in the most [illegible] -

0	0	0	0	0
1	2	3	4	5
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	10
				0

Outside measure by 10 X 4.75 X 2.875 - } Hive with 10 frames = 20 boxes = 90 lb
Inside measure - 10 X 4.75 X 2.25 } " " 13 " 24 " 84 lb
Contents of box 98.85 - about 8 1/2 lb of honey - } Honey Boards - 20 3/4 X 15 3/4 and 20 3/4 X 19 1/4
How much holes in each by drawing line and - height the bees have holes on left and [illegible]
frame let the [illegible] - [illegible] 1/8" [illegible]
[illegible] 3/4" [illegible] 8 1/4" [illegible]

Honey — In most parts of the Northern and Middle States the honey harvest is very short and all pecuniary profit will depend upon having powerful colonies at right time — Early breeding in these sections of utmost importance — ordinary swarming hives of but little value in giving surplus honey — This one reason why so little effected by any of patent hives — It will usually be found that when such hives do yield any spare honey either they have not swarmed or they swarmed but once and that very early — Swarms must be doubled or if made artificially must be made very large to succeed in storing much surplus honey — unless they are unusually early — If swarming hives of usual kind are employed it is very obvious that the old plan of taking up best is right one. In regions where there are abundant supplies in August and September — swarming hives will do better — From above remarks it will appear that seeming largest harvest of honey is not consistent with most rapid multiplication of colonies — I do not, however, at all recommend ordinary non-swarming system of management — as bees managed in this way do not work as vigorously as new swarms — and have fewer than old queens — and are also liable to perish from teeming queenless — but I rely upon my doubled or artificially strong swarms for honey — or my very powerful artificial swarms — Suppose that I have 12 swarms at beginning of season — If they do not swarm as soon as they are sufficiently numerous to throw good swarms — I make art. swarms, but even if half swarm naturally — by setting each new swarm on a spot where a stock stood that has not swarmed and managing in my way — I can make my doubled swarms even if only half hives swarm — If any of doubled hives have old queens these allowed to remain — until young ones in hives which have swarmed are nearly ready to come forth — sealed queens taken to replace old one — In this way no queen need be kept later than spring or early summer of her 3d year — If casting is prevented and first swarms were early surplus honey may be expected from old stocks — If casting is permitted or art. swarms made they will commence early lay in a good supply — and make good stocks for another season — If greatest amount of surplus honey is my object I end season with 18 stocks — If I wish to increase my colonies more rapidly, strong hives yield large surplus store — If a hive swarms — half of bees may be taken to strengthen the swarm or one which has not swarmed — young bees will thus be at once hatching — By having bees managed in this way perhaps more honey will be secured than by changing queens — it will prove almost indispensable when bees are moved in breeding season

Honey. Directions often given for removing from the hive very unsafe — If taken entirely in large boxes the bees are often taken away with it and the colony materially injured if not entirely ruined —

Receptacles for — If much honey is consumed in making wax — then the apiarian will aim to have his spare honey stored in as small weight of wax as possible — Hence the shape and size of receptacles for surplus honey very important — The bees will be encouraged to store it in regularly shaped cells not too deep — Families require too much capping for the amount of honey — square receptacles for say ten comb boxes — not too high — or else comb will be made too heavy — not higher than six inches — This question ought to be subjected to the most rigorous demonstration — The amount of honey requisite to make a given amount of wax does not appear to me to have been ascertained with sufficient exactness — I have found that if during height of making season small receptacles be used — there may be constantly taken away a few at a time — and if these be supplied with new ones containing small pieces of comb — bees will at once proceed to refill them — In this way a taking away of small quantities at a time may be made to stimulate bees to increased activity whereas even experienced apiarian knows that a taking away of honey in large receptacles greatly discourages bees — so that they will often refuse to work in a empty layer presented to them — Hence altho' bees may not work to as much advantage in tumblers or small supers as in large ones, yet on a whole more work may be got out of them in this way than by a use of large layers —

Huber. Many an American writer ridicules Huber - and yet draws without any hesitation upon his discoveries - containing scarcely anything of value not found in his writings.

Honey - By putting in empty frames at the time any particular kind of honey is getting - it may be secured - If just two are in Upper at a favorable time - block a season - and get Upper honey -

Honey - The use of 1 Mer. Frames enables us to take honey from 1 main hive when the fall supplies of buckwheat &c prove to be abundant - Honey may then be safely taken from the main hive and the bees will very speedily replace it -

Quantity - If this 1 object - take out frames with sealed honey - cut off caps - drain out honey - save comb to be returned - when sealed comb removed the empty ones to be inserted - In the very height of the gathering - frames might be removed as soon as or even before bees begin to seal over -

Inability, objections urged on this ground to loving God, ably answered by Howe. (Blessedness of the Righteous. Chap XVII.)

Hive - Necessary requisites of a good one continued -

28 - Should allow of the admission of air in some way independent of the entrance and so that the hive cannot be blocked up by snow -

29 - Shd admit of the surplus honey being taken in beautiful, convenient and saleable forms -

30 - Shd admit of any piece of good comb being given to a bee instead of being melted -

31 The hive should be fastened firmly on its bottom board - to facilitate removal and to prevent the moth and worms from freely entering place between it and the hive -

32 - There ought to be no place where the moth can find admission into the hive except the place where the bees are -

33 - Should be adapted to secure the largest amount of honey to be used in orderly distributable sticks - this wax be mixed with bee-bread but will be all the better for that

33 - Should be adapted to secure the greatest amount of heading so that when desired the force of the colony may be directed to this -

34 Should have no doors, slides or other fixtures which an idle to swarm should get out of order - and shd have no joints which are not water tight -

35 - Shd enable the operator to effect a definite exp of a bee in the of other quarter the upper hand in the hive

36 Shd admit of all operations being performed without any serious risk for exactly the space of a bee -

37 - Shd allow of a removal of all drone comb from a main hive -

38 – All these requisites should be so combined that one does not interfere with the other and the total result is a hive which can be managed with ease by any ordinary cultivator –

39 – The keys should be compelled to construct their combs with perfect regularity which they have often just to do if left to themselves

40 – Should enable the operator to transfer the occupants of bee-hives from the old hives to those which are deposited in this exhibition

41 – ~~The Bees~~ Did enable the operator to furnish destitute colonies with the means of obtaining a new queen –

42 While the hive is well adapted to those who are prepared to enter upon bee-keeping on a large scale – it ought to be suited to the wants of those who are too timid or too lazy to manage bees in any other than the common way –

43 – It should enable a single person to separate the bees of a large number of persons – with as much certainty as a gardener separates the grape juice of his different customers

44 – It should furnish some place acceptable to the operator where the Bee-Moth will be tempted to deposit her eggs and the worms when full grown to wind themselves up in their cocoons –

45 – Should enable the operator at any time to procure combs as a guide to the bees in building in early hives – and as an inducement to them to enter the smaller honey receptacles –

45 – It should allow the combs to be removed without any injury

47. Did allow of the rapid multiplication of colonies by artificial means

47. If this enable the operator to allow his bees to swarm and enable to secure smaller honey to prevent their going more than once in a season

48 – A queen bee should enable the operator of the colonies in natural swarms and enable in this way to multiply his colonies as fast as possible to make vigorous stocks of late his after-swarms

49 – Should be adaptable to the receptacles of those who wish to manage bees on the old fashioned plan – and have neither time nor inclination for any complicated

50. The hive and furniture should present a neat and attractive appearance – and the whole assemblage of bees made highly ornamental for the whole season at

51 – Not expensive affairs –
52 – Range of hives in one structure

Increase of Colonies. to the greatest practical limits inconsistent with securing sur=
plus honey – In many sections of country where the honey harvest is soon over, when
bees swarm but once there will be little or no surplus honey obtained – In the man=
agement of bees I have often been reminded of ~~Napoleon's~~ the secret of Napoleon's great
success in his military operations – ~~The two~~ Superior forces – at the right time in the
right place – He who would be a Napoleon in the management of bees – must be sure to
have powerful colonies at the precise time when the work of laying in the surplus stores of the
season is to be done – A general may have his forces so situated that the more he has
the more he may be off – and if swarms are weak when forage is abundant their
extra strength when more honey is consumed than is gathered may be a position
disp to their owner – A swarm cannot be too powerful when supplies are abundant
and they have ample space for storage – all beyond what are necessary at the times are more
than useless. Hence insufficiently protected and bad management often results in
feeble colonies when supplies are abundant – and strong ones when strength
is too late – In regions where there is abundance of buckwheat or late fall bloom
the evils of such injudicious management will be so seriously felt – as to leave even if nothing
in number until late in the season will be able to gather largely from these
two supplies – The swarming plan as ordinarily managed in most localities only suit=
ed to the old system of "taking up the bees"

For the management of colonies for a moderate increase see "Bees for a moderate increase" in my
"Bee-keeper's Manual" for supplies in early part of year for
increase or more late – See "Manual" &c for 1871 to 1882 – In keeping
up the two outside combs for supplies during – have if possible
two empty combs to replace them –

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See Di - Whispher

C I

Impregnation of Queen — The three Queens defected by Dr Laid, prove the existence of a spermatheca — Retarded Impg. the great mystery now — (1st) Let wing be taken from a young Queen before Impg. — see if she will lay — (2) Examine young Queens to see before Imp. the cavities of eggs in their ovaries — why they not lay as here with the more? (3) Keep young Q. in small wire cage in a hive accessible to bees — with drone and worker combs — see if any eggs laid — (4) Examine retarded Queens to see if they are impregnated — (5) Touch drone eggs — leave them in cells — put some of combs a few days old into worker cells — try to put eggs also — Touch eggs of retarded Queens —

Worker changed to Queen by larger cell — be why not drone to worker by impregnation —

Feb. 18th 1861 Impregn. of Italian Queens — Entice by feeding liquid honey, a stock having Italian drones, to fly as soon as bees capable of commencing — Put Queen with thread (see p. 127 of my book) on Feb. Queen a few days old, and let her fly in front of this hive — (She should have had her choice to have to singe her, she could not have got out for impregnation) — Shut up so that that we could see the drone and pick him up to be sure for certain that he was an Italian. By closing entrance of hive when have cut (see Mr Langstroth on impregnation) we might keep the queen close to the hive and thus secure the eggs. Queen of other stocks has the following advantages — 1st Would not have to keep young queens — 2nd Be sure that our queens are impregnated by Italian drones — even if we or our neighbors have black drones — 3rd — Can not only breed queens from our best Italian queens, but can have them impregnated by drones from a queen producing the best stock. So cheap as one may be, not sure until a long period after impregnation, that our queens have been impregnated by Italian drones — (over)

161.

Indigestion, Effects of upon body, intellect, & heart. (Dyspepsy forestalled. Sect. IV.)

Helen Bess Temple Dyspepsy } My dear Mrs Bess you seem unfitted by experience to be not effective & the comfort to be blessed — If this holds good generally may be not yet a test of truth

Indifference to cold — } Why Mary Lloyd do not suffer in this effect & suffer from the extreme cold may be not the reason be the cause

Inflating Bag for 2d Bog } Indigestion with lifting in taking tea cause by [illegible] Secret of the in pushing the [illegible] & [illegible] chest for bed — a bag made [illegible] as [illegible]

Square box with partitions for 4 nuclei — Nuclei pressed adhering in grooves — one gave 1st day drawn at bottom of tube by [illegible] — each box to have a lip slide pressed to cover in — sliding in 2d below box on passing — to be drawn out [illegible] about twice a week — to be removed [illegible] — zone drawn in first pressed to admit air — on side of [illegible] — here 1st not hole could not [illegible] — [illegible] to have cover [illegible] 1 [illegible] 2 [illegible] sponge [illegible] — [illegible] hole(s) — air not light — [illegible]

Box a cover of nuclei box slide in grooves below first [illegible] — 1 hole in top of each lid with sponge put in hole [illegible] — [illegible] to keep in place — good for days — [illegible] — [illegible] — [illegible]

My Journal on board Ship Hi – August 2nd – 1866 – (4)
to 84° – Splendid Cool weather – Bees work vigorously on buckwheat – A stock of black bees seem to work most in proportion to their strength – Hence before suspected that black bees were hybrids – Saw Lobes – Regina bellipina – A stock of black bees reared several very beautiful queens from Italian eggs – one the most beautiful I think of any I ever saw – to mark for Miss Kitty Henry – Colonies feel a little cry night & pretty swarming with them – Important suggestion. Feed moderately in September – or late in August – if bees are not inclined to carry honey vigorously so as to get late hatched bees for wintering – Best time feeding effect early – eggs in many cases of queens just laying & to hatch & could not test them – Was marvellous stock to light in winter & winter wise – and two very of the bees were old – think that for every pound of syrup fed last year I obtained this season have received more honey – Important – August probably the best month for breeding Italian queens – The stocks not swarming now and consequently plenty bees for market – weather warmer and more settled than in July – Black queens not to be remarked – In September a second crop of black queens – Have found more queens mismated in that month than in August – (9th) 69°, 84° – Bit little done on buckwheat – at 6 P.M. – very heavy thunder shower – yesterday caught two carcalio on a free grown apple – they have been very destructive this season – Hornets Bees – Smoked a clay in the park – they gave in just as fast as bees – the queen came out my door – deserted for dry food by a mass upon feed of eggs – did not find her afterwards – hard plenty but no honey – 4 P.M. 84° – Thermometer on window ledge – not a fair exposure – would show 2° or 4° degrees warmer cooler on a fair exposure – Gave a cont. contributed mostly to a good market – they cleaned off the market! Uncaged a queen on the 4th day after impregnation – at 11 A.M. – she had not began to lay at 6 P.M. – Was fortunate enough to find a queen on a comb where she had laid 2 eggs so that I can see to the very minute when these eggs were laid – they were worth their weight with the closest care – Caged a just impregnated queen and gave a queen some fifteen hours old – or an hour from her being entirely confined by the bees – Caged another queen suffered impregnated – and literally the unimpregnated (12) caged queen in some manner – so most to be were received

but some days after could not find her — Very important to test this point fully so as to see if when one is caged it will not be necessary to wait some time before releasing another —
In Some queens which have been caged for a few days when released are lay in destroying queen cells — Does the disposition to destroy queen cells prevail most strongly in quite young queens —
Important experiment proposed to ascertain whether the
Honey eat by the queen affects the development of the eggs in her ovaries — or whether the bees feed her with jelly created from pollen — or whether the ovaries of some pollen — Take a very fertile queen in the a strong nucleus — give them comb with honey but no pollen — confine them in a dark place — give them liberty at night — see how long queen will lay — if she stops laying — give a lot of bees actually hatching eggs to be and see whether she will resume lay —
Give to a just impregnated queen hatching and just hatched bees with no pollen — to see how soon she lays —

Shows (with Hornets) pipped around us — Very little honey from buckwheat to-day. A swarm with unfertile queen for which we have had less than Saturday plenty of honey — Since have been so careful to keep the swarm in good heat have had very little chilling — have more swarm this season than ever before — are housed only two or three days — (5th) 70°.88° — Very hot — close quilting weather — Hornets pipped at a distance — A week ago received Not my imported bees from Italy they arrived in New York — They left Digoni on the 5th — arrived in New York on May 26th — Were first opened until 30th — Out of honey — in one of two in hives also — in another not a drop — bees crowded with a mass of pollen bees — queens open cell cells — one three (3) alive — Put Italians from travelling hood — and other with further bees — Italians seem very active — Digoni dead in many hives — Today they were sending girls young queens or better cells to replace the expired — Thursday holding bees and only opening ones a very little long of introducing queen bees this May the 28th — Tested yesterday just hatched queen — bees 15 days old queen — bees commence to lay the third day — some of the young queen cells in the cage — A queen cell on honey board — Bees have been three days in the cage — Observation — August 24th 9½ a.m. — Gave a good comb some few minutes ago to fetch on it state of the queen — 10½ a.m. — Examined eggs everywhere and no drone eggs laid yet 5½ p.m. found the queen on the comb and 12 eggs laid — some of the bees must have laid only a few minutes before operation — (25th) — 9½ a.m. Queen on the comb laying — comb pretty well filled with eggs — the last eggs being laid at 9½ a.m. — to a minute — Tested queen. Gave a queen just hatched queen — a few hours later found young queen all right — The swarm strong and in good heat they say — Shall wait a week or so before removing the comb with hood over the opening entrance — watch to see when the first and when the last bee hatches — Shall feed a little daily —

Experiment - Caged July 31st 2 3/4 P.M. - August impregnated queen
August - 4th 11 A.M. - Impregnated queen - removed at intervals for an
hour 3 P.M. - no eggs - (5th) 5 A.M. - eggs - Then cage again in a few days
and see how they behave. Leave Nucleus when liberated - 6th - 10 A.M. - Caged
queen - 10th - Uncaged at 7 A.M. - 9 1/2 A.M. - not an egg - 10 1/2 A.M.
1 1/2 P.M. - none - 5 1/2 P.M. - 20 eggs - queen about the hive leaving the
hive to lay - nothing surprising - had been laying fully before
caged - In a few days Nucleus cage again - 11th - 7 A.M. - Caged queen
again - 16th - 7 A.M. - Uncaged queen - 9, 10, 11 A.M. - not an egg - 2 P.M. - none -
6 P.M. - laying briskly - 17th - 12 A.M. - Caged again - 23rd - 8 A.M. - uncaged
queen - 11 A.M. - not an egg - 3 1/2 P.M. - not an egg - 6 P.M. - one egg -
This queen is now accustomed to being caged - About two hours seems to be required
before she can resume laying after being caged - Shall try her in a week longer
and then switch. - (Cage tomorrow night at 10 P.M. - Uncage at next time cage
queen at 10 P.M. - hunting together only - Next time cage queen as soon as she lays freely
at 8 P.M. - uncage her at 8 A.M. - and see if she proves to lay if experiment is tried
the same time with my queen to return to laying - Put her when caged some days
with hatching and just hatched bees and see whether results are different -
first with fellow - then without -

(5th) Find it rare to have Sitter lay queen in a nucleus — More
so with the dwarf not care her eggs to hatch — Opening cells with eggs
and her in cells up of feeding — Did no cell in the first eggs —
What do they do to them? Dranes expelled early the 16th of M.
were fed with honey — Fertile workers lays in queen cells
& a colony with nothing but sealed brood etc sealed queen cells
here noticed a queen cell building for several days — Finally it
made a false cell — Kept queen there until nearly ready to hatch it —
often — saw eggs near the bottom the side — jelly in bottom —
the cell was the mark by which that eggs was removed by her — Noticed
had no cells such as fakir in the prefer to lay in! gave them
drone comb —

Stocking — a strong nucleus — mostly gray bees — with a two feet crown
bees had most of it turned down below — (6th) 70°. 82° — Heavy
rain during the day with thunder — Important — A colony in a box
pen! July 18th — drone out — bees — got old black queen —
returned bees — 16th — gave fakir Italian queen one clear of bees —
The swarm was accompanied by a young Italian queen — (7th) 68°. 74° —
Found a young queen dead on bottom board of hive that swarmed
yesterday! Still drive the black town to see if of his queen grow
them — This shows how fertile queens are to them —

(9th) In all my removing of Italian queen from black and making it in cage
care to notice any lips of queen lipped — Usually Bees — After
notice comb a part of cells with cells on one & both sides very
queen and cells very thick — Even when such comb lifted above
bees made cells in cells and they ought to be cut out —
Important. Black bees use our cells when hatched queen
queens much more inclined to lay their comb than Italian queen
They in addition to their comb makes it so much more difficult to find
the black queen —

In giving just hatched queen to colonies from which their queen has been removed they are occasionally lost & not killed I think but chased out — If a queen where cells is prematurely forced out which is very rare is given to a colony she is often chased out and comes off by the bees without being hurt! Experiment — Why if giving them queens which have been on hand 30 or 40 days may not be better — Bees easily set them when just hatched with bees on comb into empty hive — Late they get "the hang of the comb" —

(6th 5th 76 — To get bees off from the hands — make a light quick shaking of the hands & fingers with the whole arm — odor in some diseases which most closely resembles fine ones exists then there which drive resembles the flesh bees? Whistling, musing noise made by bees as they enter on flying when swarming or other alarm attracts attention of bees to run in some direction — chloroform — Some bee-keepers think hiss they make, a whistling sound to imitate this hum a sign the bees enter quicker — If young queen or just hatched ones put aside then the interest they make to it — guided by the same hum —

Bee-head — Manacles which were in that time ago encrusted with bee-head — Pretty well used it up — So we in being alarmed from with the ata of insects of bee-head —

Drones — all very good colonies are rearing drones every thro which are not fed — Is it effect of body heat — or effect of this gas to stimulate to breeding — Dr. said that flesh does not sour among me — Here had they four minutes queen hatched —

(9th) 80°. 80° — Beautiful day — Hazy at a distance in the P.M. — (7)
Go get bees out of honey boxes. This A.M. put big boxes
of honey crushed in the bees into an empty hive set on the grass —
Cover all over carefully with a wet blanket — at dusk put a bee
in the hive — Gave out teeth of queen — were figured in Beau-
mont — Every bee has its tooth — cut the crop — gave with queen
cells — The only colony I kept free that has done nothing
promptly on hand last night A.M. — Left the rest of the colonies
although not yet ready — In making Miller — we decided
not from untested queen — eggs and larvae for testing queens
as to have any queen cells reliable — Drones — Think I let them
fading off those a few weeks ago running in without feeding or
attention — Only Dragon queen of 1864 — Cows milk Miller
[illegible] a meeting and gave to the [illegible] bees and
[illegible] deeply without feeling — (10th) 70°. 80° — Heavy dew
with hazy in the night — Hot to day and opened two hives queen
cells opened on the 15th or 16th — Not finished in hive and bees
closed up and the bees often seen to be now queen hatching
[illegible] of Sept. to day they are quite [illegible] — P.M. cut
of frame and divided into often [illegible] a piece of sound be
which was spoiled one at a place to see all [illegible]
Pulled out frame for one of fairest queen given in 24 hours
a colony where queen had been removed a week ago — Opened
two hives such [illegible] if afraid [illegible] bees
do not queen after brood [illegible] increase [illegible]
the days a few cloudy [illegible] queen may [illegible] yellow
by that day [illegible] one hive [illegible] Great swarming
At 8 P.M. fed a natural swarm which [illegible] Thun-
dering much cut in [illegible] — Find queen in hive [illegible]
feeding [illegible] with [illegible] queen
and bees joining in hive together — Left the queen here

story — found two sealed queens destroyed — [illegible] 24 the
unsealed wheat — Fetched supplying queen let the swarm —
Hived them giving two frames of brood sealed — the frames cloyed
3/5ths full of honey — Capped honey and some uncapped — I am
rejoiced to see the bees so busily employed — Hunting to get a fertile
queen out of a cage the last time — was [illegible] to the door a
[illegible] — Took off some fees for a [illegible] Convention — and
carried them back to their hive — the bees [illegible] — bees worked
upon them as the slot on fruit trees — seemed to be safely — When
a queen takes wing always see that her [illegible] of [illegible] are
on the wing — and she will generally go to them — 11th — 64° " 75° —
The change to cooler weather has impaired the flow of honey in the
breakfast — next to nothing done by bees to day — the new swarm
had frames of brood given — doing next to nothing — but little
[illegible] to be done on 2nd crop of red clover — [illegible] swarm
of quiet — fed for chores — with queen cells preparing to swarm —
[illegible] the shade — nothing to get my children to be filled
with bees, but fully could take advantage of it — there has not
been the spring's pure — the second made by queen quite
distinct from the made earlier by chrysalis — Heart Corner
Note Book & Clock preferred for inspected queens but when I kept
all queen cells removed, so that if a fertile queen came out
a fresh queen cell should be there at which to perfect — the old be
killed or killed — Give laying queen to colony with young laying
one — a bee quickly seized her leg. Mrs Tom presented the Teacher
a pound received her from them — Wide topped frames — If
combs are not true cannot be seen — and cannot cut them
Must have a tool for prying or lifting with frames to lower them on
the rabbets (12th) — 56° " 71° — Too cool for much bee work on breakfast

Beautiful Obstructions — or Instinct of Bees!!

In hiving the great swarm of the 10th I gave them two outside frames (1 and 10) empty of drone combs to act as a guide in their laying drone eggs — and here readily accepted for the eggs — but the cells (2 and 9) filled with sealed honey taken from a full stock — 3, 4, 5, 6, 7, 8 — frames about 2/3rds full of new comb — not nearly to full depth — much of it — but as unless required continually (constantly of honey) to rear brood in) the bees are in the honey gathering time would be at once used for liquid embryo and completed — Since the bees have been hiving very little honey gathered — too cool — the bees were evidently discouraged because the cells they prepared for drones two on one side and two on the other — Offering thus to the queen not an egg in the drone cells — although the queen had been laying drone eggs freely in the parent hive! In some frames honey sealed near the bottom and unfinished drone cells! The other frames had 3/4th or more of all the cells filled honey removed and offers free for honey eggs, in an ordinary state of affairs this honey would be spare hands uncapped — Not an egg in the certain cells which to be used for breeding would be required on selected honey — one of these cells was partly drone — and on inside a drone cell had been built — in fact the lower edge of the drone cells — the queen to lay eggs in! How lack of the comb foundation is of much of it is not drone comb — The whole proceeding of this swarm show an admirable instinct & fidelity —

I have put the two drone combs on the outside (No. 2) that the cells filled with honey (3 and 4) — then the queen may not fear they contain no place for the bees will feel more encouraged by the queen 15th — Bees have filled capped — Nearly all the cells have been sealed — The two combs — the two empty drone combs nearly full!

August 23rd — As the swarm removed sealed honey to give queen room for eggs and put it in drone comb! Thus designs her queen cells from them — hoping queen to raise queen cells — raising many — they have of course let sealed honey queen alone —

Nails under bottom of 2nd story outside of where it rests on hive very important as fear to hold the 2nd story when lifted off one set on corner of hive - to rest to hive tier -

When cutting only ripening queen cells, and filling cakes it is interesting to see how soon bees set out to repair damages - often before hive is closed - by yielding to despair!

If poison of sting at once wiped off bees not so likely to sting hence - Important - to be sure of seeing all the queen cells the bees must be shaken off - some cells so flat and nearly concealed as to be difficult to see unless bees shaken off - Many queen cells!!

August 1st removed queen from a strong stock - This evening found 38 (thirty six) perfect queen cells - 14 inches - 10 from which queens had hatched - 12 which had been gutted - found one queen at bottom - and a hatched while I was examining hive - one queen dead had fast in a cell - playing possum - seemed to be dead until I pulled her out - she at once bled in spot of honey - do not remember seeing more of so many perfect cells - To know from what hive swarm a swarm has come - after hiving - and removing - shake out a handful upon the ground - they join their return to place they left - 13h = 59 : 54 = A colony to which fertile queen given two days ago swarmed! Swarm returned - Night I had removed all queen cells - but found a young queen piping - "Dollars" - Removed a fertile dark queen from a strong colony - Upper layer queen - Laid her queen cage on brood - still with hive - bees have been around her and fed her ever since!

Refer to Notes 24, 65–62 (11)

Experiment to test the time required for development of Workers, Queens and Drones —

August (4th) 1865 — 9½ A.M. — Gave a good comb to nucleus with fertile young queen — 10½ A.M. — 4 eggs — Examined at intervals of an hour — more at 4½ P.M. — at 5½ P.M. — queen on comb and nine more eggs just laid — (5th) 9½ A.M. — Found queen on comb laying — about 4 eggs had been laid — caged her at once & so as to get the very minute when the last egg was laid — (8th) Gave this comb to a good nucleus well provided with honey, bees and bees of all ages — 8th — 6 P.M. — no cells capped — 13th — 5 A.M. — two cells capped — 10½ A.M. — 19 sealed over — 2 P.M. — over 60 capped — (14th) 8½ A.M. — about 20 still unsealed — 10 A.M. — only two unsealed — 2 P.M. — the last one almost finished — the first sealed in 5½ hours less than eight days — supposing the egg first sealed was the one first laid — the last nine days and 4½ hours — supposing the one last laid last was last sealed — this gives a reduction of one a day — there no doubt it is often greater —

(14th) 69°. 76° — Hay flows with Honey — bees worked well (13)
at that time after the flows — worked late after 12 Oc —
Important. In opening colonies take too much time to blow smoke
into entrance first — if not done some bees rise in the air before
they feel smoke — are angry — by their sound make other angry — they
set them close for a few minutes — go to something else — when
we have ~~lifted~~ alighted come back — Safer working with angry ones!
(15th) 69°. 78° — Splendid sun day — bees very busy early on buckwheat —
Experiment — large a few weaker with young queens to see if they
are not attended to — and fewer die or have colds — Green colored hybrids
very numerous to day — Have just settled queen a foot from entrance on
alighting apron — marked with — any delay into hive! Important
If a queen takes wing from a colony instantly shake down bees to
set them flying — queen joins them and you know as they enter
hive — If an extra large queen cell — a day since queen born —
When bees are hot — easiest to work on hives — bees most peaceable —
When bees are hot — easiest to work on hives — bees most peaceable —
Impossible to find — A marked queen — Young bees which could
not fly tried to join — usually if a surplus nearly — In taking
out fly tried to join — usually if a surplus nearly — In taking
down queen cells the bees are a long time in disposing of the second-
(16th) 64°. 76° — Cloudy occasionally — bees work well on buckwheat — When
quite young queens get off the comb in opening hive take off to seize them
not hurt them — Does you miller know you are out? If old queen is taken
down suddenly and bees by unless in a moment seize her — if she
was a choice queen we can't see — Impossible to find all queens
of queen to be introduced to a strange colony — Buckwheat bees May 5th a
week bees were more healthy — from up Elton where been weeks more
healthy in Hayley were in bad shape! quite well! Framed — clean
fitting well you to place for keeping queen to leave the frame —
do they work you more readily in the dark Let's guess they are the
yellow? — Let dark Italian queen work more readily dark bees? Nearly —
A colony with infirm or mites queen with any foul brood should be
been requeened after to find queen very peaceable — Working be
gently handling of (queen) hybrid queen reared in during hives — are
strong equal long in Elton farther out on bank to see if we may be
attacked with bees! Let's go to see the bees attacked
were on the ground when they were out!

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Long passages in honey-board - fain thinking I take 2 lbs to effect the
under colony - Drones - colonies very full of drone brood - fed every
more crowded if possible than in June - My stocks of pure Italians have
more honey than the Italy Hybrids - (89°) 55°.. 74° - last - cloudy day -
Decaying queen cells -

(18th) Yesterday
~~Today~~ at 6½ P.M. - two queens arrived of my Italy, in fine factory -
Fain Italy to Dzierzon - Hon preferred for young - Sent to Hartwright -
New York - fed by A.B. Hale - money 93 - given to Express on
Thursday 27th July - received Bristol Pa. - (lost three days journey)
Cloudy night!! occasioned by L.A. Tyler next day - one big red queen
alive and two nurses - the other two queen cells from 8 to 12 days unsealed!
He has laying worker mess in the boxes - Hollest one powerful colony
nearly - hottest clear - Sep. honey more and cell cups have been on both
Dzierzon puts up too many tiers - better plan to put up only two tiers -
old comb - plenty of sealed and unsealed honey! Heard of Red animal
on the 5th - telegraphed - Sent two queens immediately - very few bees left,
Tyler got it - Sent two queens in my - very new brood! Sent a letter
next day - received Tyler two letters to send last week - He thought
Hon Monday - Got his express receipt Wednesday A.M. - Expected
that P.M. - Offered him all right - no hood - no queen cells - If they had
come unless have lost the best one designed for that stock - as it happened
yesterday - having first decapitated queen cell (see above) One queen
very small - quite hardness - introduced her yesterday to a queenless
stock - but no unsealed brood or queen cells - this morning - this A.M. a few
eggs - I gave the stock to the stock from which came last - eggs on right -
this A.M. threw her - having previously taken out every bee and put on
queen excluder to be queen cell if there was one - Night before gave
them two sealed queens - More wheat - never saw more of as much anything
of bees quite disappointed of effecting - Shall certainly change
this colony with letting ~~[illegible]~~ as soon as can bear constant depletion
of brood - queen hardness but only moderate size - upon laying they
may show much larger - Shall buy no queens excluding to make up
any deficiency - queen as much as to stock queens in -

My office is swarming with drones and the bees are feeding
[illegible] to drive them out. My queens are to be with my own eyes. Recollect
queens, drones and workers come from the queen — from the dished
in July when only the finest wax is found — Shall figure upon the
three queens were artificially raised in this swarming hives — Work from
daylight to dark. The fumes 19th — 54 — 78° — Beautiful day — Blessed
with dove at the moment — are loaded with wax for hives — a few such
days must make a great change in the state of my hives. Opened my
stock, counted with Ben, hived — now saving the change at this season —
At 11 A.M. — [illegible] stock swarmed. On Mr. at green corner of
fallen cover with grass — 8 Lilac queen — There were 24 queen cells —
the young queen is very great — but [illegible] cells in the [illegible] (not exploding)
Might come for to-morrow. Beware they [illegible] lest [illegible] of
of their cells. They to fire flies at — They use the liquid — acted like a compact
mass of a [illegible] spider — cut out three cells — only a few in queen cells —
[illegible] a number of queen [illegible] — Cuff fine
with the [illegible] hanging and [illegible] of them! — One of the hives swarm
[illegible] in a box on the [illegible] (17) — seventeen fine queens!! —
In my reading and experience there know of so many [illegible]
[illegible] very great from [illegible] — [illegible] discouraged if anything [illegible]
[illegible] when they believe. Very [illegible] [illegible] [illegible]
to feed [illegible] — Second swarming — may get a [illegible] [illegible]
[illegible] — Long queen cell — must [illegible] — [illegible]
[illegible] — [illegible] [illegible] [illegible] either
[illegible] queen [illegible] [illegible] on [illegible] [illegible]
[illegible] [illegible] [illegible] [illegible]

from a Ligurian No (1) – This small queen may not enlarge in size – This A.M. – could find only one egg in the No (2) – In proper arrangement of the cells greatly disturbed this stock! The brood only were two minute separated – and not centrally – (I mean frames with sealed brood) – stopped Manipulating in the A.M. – and found the queen laying twice in P.M. – and has since been much encouraged – Gave them a frame with honey sealed and unsealed – not centrally – and in a very short time found queen on it! It is an unusual condition for a Ligurian stock to have so hard to mature – I'll be right glad to hear you find – September 2nd – This P.M. – at 4 O'C a beautiful Ligurian queen hatched from my smallest queen – notice nothing peculiar about her as to size and color – if any peculiarity was Ligurian – either in form or from the common sun – This may be more safe – if so because they have not been so closely at the Parents and Dr. Gene & Teach – 4th – We now have quite a number of queens from my smallest Ligurian stock they are very beautiful – some quite small – this owing to their malleable – none perhaps quite up to the mark of the Blended queens I am now getting female cells of the Parents and Dr. Gene & Teach – Dont notice anything to distinguish them as to the size of their bodies – I see no cause to doubt that the crossing is a success – Since in a day or two have queens from my large queen which have been hatching – I am very anxious to see how they will turn out – Have a beautiful Ligurian to the cell but I cut out for Sunday – Yesterday and to day hatched several very nearly colored queens from one of my Ligurians – The cells are reared in large colonies – but they are mixed – not a cell is dark as the thing of maybe that is a general rule the rearing of queens by workers mixed or hybrid may cause such – Allow the queen from the other one are reared in small lots one cell there yet cell as yet – As I have queens from the same queen (No 2) regularly previous – May look forward to a queen cell from No 1 to mate to the best of Mixed from Ligurian queen No (1) My beautiful Carniolan distinguish them from my pure queens – I can not necessarily separate the queens but I do not wish to do so – I am slightly worried lest the queen should not be a better stock –

August 18th – 62°. 78°. Splendid day –
Time of hatching of queens after removal of queen – pulled removed queens from two very good stocks – 12th – In one 36 good cells – 14 unhatched – 12, gutted of 10, hatched – To day in A.M. – only one had hatched from the other colony! No certain rule – but might always to look on the 10th day – Mr. August Swarm here came off after 2 P.M. – A queen removed two days ago and left on support of legs of hive died this A.M. – Bees here too last night attended on her – Splendid day for bees to fly – Bees building bees comb – When queen cells given to a queenless colony they often wrap them round with pleasure –

Sept. 15th – Have had many very mean queens from Ligurian No (2) – from queen reared by impure mother – The last days two have had some queens reared by impure mothers! The imports too reared by impure bees seem not so deadly colored! – May be mistaken here – 16th – Have had some beautiful queens from Ligurian (2) – reared I think by pure bees – Have given a comb of hood from Ligurian (2) to a strong stock of pure bees to see what kind of queen I shall get – 20th – Many of the Ligurian queens are of a deep orange color after impregnation – Recently many of the Parson queens – More like the Syrian stock – 22nd – A truly splendid large, dark orange fertile queen from No (1) – Comb hood was given to a very strong stock – fed daily – That had no unsealed brood – on Sept. 9th – May sealed over a dozen choice queen cells – Examined on the 18th – all gutted – and many of the bees of them gone! Bees strong – fed – had no honey to feed – comb with eggs new – very early development of queens – Many of my queens from No (1) Ligurian beautiful – many of my one from No (2) very mean! ~~Hatched~~ Hatched from No (2) given to pure bees has many choice sealed queens – If have pure hood I shall at once endorse the queen – 25th – Two very beautiful Lig (2) queens laying – the color of Ligurian queens is more uniform dark orange – Pure queens hatched September at birth – but those impregnated much more like queens usually do – October 2nd – Only two queens from No (2) queen cells – most of them have gutted or broken one queen beautiful – the other splendid – Have had some very beautiful Italian from Ligurian (1) – one a splendidly colored queen – raised two nuclei in an nuclei –

August 20th 58° 77° — Splendid week on buckwheat — more bees better.
2 P.M. 60 — Attempted hiving in the afternoon —
Get after swarms — Feed daily — sense is to get drones!! To get combs
and bees out from Stores &c. in the section. Break up old bee
hives!!! (see page) Discouraging management of combs see page
Gave a good swarm an empty hive — they began to pick it vigorously — gave them eggs, they
began comfortable! Helped a swarm hanging little girly bee off
from flower — hive stores — they often experience in Propolis — if honey comes
be not properly fitting mind lids bested by bees in quantity left with propolis —
In a hive a bumble bee queen feeding fatted cred — Overhauling combs by bees —
Saw male drone trying cells in cutting out queen cells — dead bees are
not thrown out by bees — are carried to entrance. Large cats are
unmanageable should be mistaken. Winter packing — some combs out in hives
Chalfont swarm year ago had fog mouth dirt — they not quite — drones
others — Make clothing warm, bees almost. In this way can get
good use of newspaper wrapping paper, use but one — and
make it half as wide and over top 2/3 from bottom left —
experiment some time — 1/2 or 1/4 inch lid the paper down the side — keep old
not only such a package — if it works better the coarser yet cheaper
will be filled up — not always good by bees — cost [illegible]
Jamieson has been [illegible] with [illegible]
Not he can always make a cheap sound by putting [illegible] in the bee room!
If he conducted an fair [illegible] for drawing [illegible] quantity
answer — [illegible] of 2 lb in one hour during [illegible]
[illegible] by the [illegible] — giving queen cells to weak as he [illegible]
last [illegible] — [illegible] queens — I cannot [illegible]
Not natural queen cells more intelligently [illegible] [illegible]
22nd 72° — Elm [illegible] is mild — after day heat — 11 P.M. 72° 73° 60°
S. 60 !!! Most [illegible] S.W. near to N.E. — no flow of honey after
N. Shower — [illegible] to 10 fine cloudy — [illegible] hot [illegible] [illegible]
drones from Stores queens — on a hot [illegible] [illegible] [illegible]
[illegible] — [illegible] [illegible] — S. S. [illegible] [illegible]
to [illegible] [illegible] [illegible] with a [illegible] queen — large queen! [illegible] queen
about [illegible] — one just [illegible] [illegible] — in a few days after [illegible] queen
[illegible] queen — [illegible] queen — [illegible] [illegible] [illegible] queen [illegible]
[illegible] [illegible] [illegible] [illegible] [illegible]

Delay in rearing queens after removal of queen.
Bees often delay beginning queen cells until the multitude is almost doubled.
To day found queen cells in a good colony with sufficient comb of brood and eggs in the nucs — on the 2nd & 6th the two white ones left hives in which eggs had been laid last — and the queen cells were not all sealed — the hive in the other cell was too old — Drones. Quantity of drones in all colonies strong stocks which have not been fed. Perfectly crowded with drones — and hard and heavy on the hives gone. Straight Guide. Would it not be much better to make the guide very small — just large enough to have the two sides of the future queen cell on it and the rest finishing of the comb left to the bees — to prevent the bees from building drone comb — also brood of different ages — affects the quality of both queens and workers — Inserting queen cups under brood cages queens reared from them — Hot weather rearing queens — Temperature of hives — queens — Hot weather — Use of fume for lifting out the end of heavy frames —
What days of the bees go off with the swarm? Is it a certain age? As queens last the end of June — will the bees go off with them — To day this point fully settled — July 3rd — Morning a very fine white queen — the bees very orderly colored — from a very large stock — accompanied with bees and brood — Mother bees — June (14th) Hybrid cell fails to hatch — 15th — Virgin queen — well accepted — August 1st — Queen raised from eggs laid the 1st — fine and strong — Queen reared under the Hybrid — a great number of bees — Remarks on the propriety of [illegible] — Elephant — an enormous flower — [illegible] — and [illegible] — Bees dying — [illegible] — Second Swarm — Increase of bees — [illegible] — Hybrid queen cell — [illegible] — [illegible] — [illegible]

A very [illegible] very white & pure & day grew [illegible]
exceedingly [illegible] existence — Heard day before yesterday hissing [illegible]
a stick — a pure swan — note repeated 26, 51, 46 times — yesterday heard
quacking — fly day both with flattering — as though imitated queen
was trying her wings — In short playing wholly [illegible] for me —
Mr Fleck very really has any feeling — since first year [illegible]
unless stuck — you bring me [illegible] now I hardly will I see
my dying [illegible] — I think these marked peculiarity might
signify [illegible] — the room which they make their [illegible]
attract their flying [illegible] — Which does they make history —
great to cafe [illegible] — see the swan don't [illegible] for this
area of [illegible] to [illegible] Mr Fleck [illegible] don't find it [illegible]
[illegible] idea to be got rid of — the some we got rid of
the idea that which we [illegible] do with queen [illegible]
as Mr Fleck [illegible], the letter — no one [illegible] — some
less [illegible], some [illegible] some [illegible] letter &c — this letter [illegible] —
Dealing to [illegible] queen cells — A good stock with as [illegible] [illegible]
to queen removed — [illegible] 24h 48m 68m [illegible] [illegible]
[illegible] — 5h 42m 70m [illegible] S. S — a
flow of [illegible] almost all good — [illegible] [illegible]
[illegible] — [illegible] [illegible] [illegible]
[illegible] — [illegible] [illegible] [illegible]
[illegible] — [illegible]

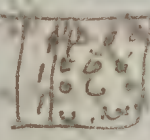
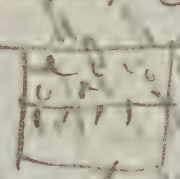
My dear Lord Grey — but do not fear — Hope to get well through with the queen
raising in three weeks — 26th — 45° 75° = [illegible] day — Lady is [illegible] also
in the Clerk Law — quantities of dine leave hospital at Galway Clerk — or yet
it has been rejected feb — but they will decline to see or more — The Probability
that is going on in a few days seen in these Cork Marriages that the
potatoes and a few bread are often consent with the clerk to [illegible] distributed
to queen less — Asking if the crew if you return to sea then [illegible]
dying and they are much more quiet — Letter — Shall not two very few
to help a [illegible] — or they [illegible] are the less in [illegible] — Be hesitate
in many [illegible] to [illegible] that it for to be sufficient [illegible]
they [illegible] when the bed is very fast in so lately [illegible]
weeks but [illegible] of [illegible] fresh [illegible] sealed — Hers in the
queen [illegible] [illegible] This [illegible] much [illegible]
There [illegible] [illegible] — [illegible] [illegible]
[illegible] queen of [illegible] [illegible]
27th = 45° 74° — Triangular Bicycle Puzzle — Very important — [illegible]
for [illegible] [illegible]
triangle — In my first [illegible] Dec 9th (21) — [illegible]
spoke of this to giving more surface for attaching [illegible]
[illegible] in the case — they get a much smaller attachment
than on a flat surface! Any mechanic guides must [illegible] the
law is this to [illegible] a triangle or may be and not have the
[illegible] when they are [illegible] fast to lay [illegible]
[illegible] to [illegible] the [illegible] of the two sides [illegible]
[illegible] the flat part of the [illegible] this day will be equilateral triangle
[illegible] [illegible]
If the triangle is 3/8 on two sides and only 2/8 on the base [illegible]
the two = then 3/8 + 3/8 = 6/8 = 6/8 − 2/8 = 4/8 = 1/2 = the attaching surface [illegible]
[illegible] flat surface — 3/8 + 3/8 = 6/8 and 6/8 − 2/8 = 4/8 and 4/8 + 4/8 = the [illegible]
surface gained by using a triangle 3/8 × 3/8 × 2/8 = instead of 3/8 × 3/8 × 3/8
by [illegible] [illegible] [illegible] is enough to pay for the [illegible] of a [illegible]
bicycle — get the [illegible] cut [illegible] [illegible] — 3/8 × 4/8 × 4/8 × 3/8
would cause the 4/8 + 4/8 = 8/8 = 1 + 5/8 gain of attaching surface — if 4/8 × 3/8
4/8 + 4/8 − 2/8 = 6/8 = gain of attaching surface [illegible] the [illegible] [illegible]
an inch — we might then gain — if the bicycle is [illegible] [illegible]

with 8/8 8/8 8/8 = next day the blooming surface — [illegible] wide faced [illegible] [illegible] fine [illegible] fill out — [illegible] one, while leaves build by different sizes and place results —
(28th) 52°. 78° = Beautiful day — very slowly opening a little bolder but not so much as before the change in the weather. Stately very happy at dense holiday — falling out leaves — the [illegible] leaf cultivation at it [illegible] [illegible] leaf keep coming in plentifully! — Pinks — are as new pink as the queen calls a flame — A colony where queen has been for a period [illegible] and [illegible] result of time — her daughters have just settled near to it — when their queen has died — do they know they are to be left queenless? — Working out on 16 days fed at the rate of [illegible] — [illegible] — [illegible] — Weak [illegible] [illegible] [illegible] — [illegible] [illegible] [illegible] — [illegible] [illegible] [illegible] —

Black [illegible] Hair [illegible] Features — always a beat for the [illegible]
Depression of [illegible] Cotyl queen might [illegible] spring [illegible]
of what [illegible] feel to [illegible] I'm write [illegible] [illegible] violent
[illegible] a letter does not my [illegible] of her [illegible] the feeling [illegible]
[illegible] for [illegible] Detour in reading this [illegible] [illegible]
indication of [illegible] to [illegible] [illegible] [illegible] [illegible]
[illegible] [illegible] [illegible] [illegible] [illegible]
Any unusual [illegible] of [illegible] [illegible] [illegible]
[illegible] [illegible] [illegible] [illegible] [illegible]
[illegible] [illegible] [illegible] [illegible] [illegible]
[illegible] [illegible] [illegible] [illegible] [illegible]
Have made [illegible] [illegible] [illegible] [illegible]
[illegible] [illegible] [illegible] [illegible] [illegible]
[illegible] [illegible] [illegible] [illegible] [illegible]
[illegible]

Lake of Dreaming — Have done without hard in all Yrs? Is it not an unnatural action for a stock or colony of bees in healy season to be without hard? Hazelnut & Dandelion here bees of all ages — (6th) 74°.. 84° — Showers — The same splendid corn weather — day and night perfect for ripening the corn — also magnificent for queen raising — to day no rain after early in A.M. — and bees get up the red clover — No Yellow perceive any trace of honeydew — and yet the fields are white with the blossoms —

Important! Keep extra boxes for holding ~~fertile queen~~ or queen cells ~~or other~~ — so as to get hard in Dandelions — and yet have sealed queen — this of course in hot weather — Important! In taking any queen cells after cast distribute as soon as possible — to keep warm have put in some of big brood of a stock without a fertile queen — they stick her feet are not so big to remove them — Put them in a small box or cage — this is not to be a cage but tow — or rip to look like a cage of strong beautiful bees that have swarmed out — quite time to do — is now queen raising — bees attention — Queen cells — Queen — Queen — Queen

cing in the section — Important Theory — Both Dzierzon and myself think that we have improved the Italian bees by careful breeding — Does we not lose as much as we gain by close breeding as we have gained by selection? I presume that we have — In this section I value my little Queen, Caught a just feeble queen — had a large white moth adhering which came off — Removing the thread like proboscis to fetch sleep — Other of winkles — Just hatched when place here a whitish larva — Black ribbons drawn around me when I manipulate — Due to light on my fingers — Your time is short — You are a dreamer sure — Can we [illegible] in form of the bigger race — Very important! How to get rid of to repair pinhole in old combs — Have a theory that pinholes in old comes to remain unfilled — even when they are quite combs building — Mr. R. C. Otis suggested last week that they found it difficult to attach new comes to the old cocoons — [illegible] Cases — Mr. Pease suggested growing the entire surface — Carry all the [illegible] out the queen's hand from the virgin clay — Does the mother come to a stop after — This Mr. Dzierzon — Does the effects to refaunci — [illegible] unfinished cappings — Will a feather carbon the [illegible] with millet juice — This Pease to my daughter — Let the [illegible] "Smokes and clear with smoke as bees will be free" — Mr. Chase [illegible] — Now in partly filling frames can bees be induced to build the [illegible] — Use the edge! !!! —   Use it edge !!! —

This difficulty about the attaching new comes to fail in white [illegible] — Mr. Pease (10th) 76° — 86° — Agent chalc — Bought regular [illegible] ever such weather this season — for a week or more the greenhouse has been below 90° or in the cellar above 86° — Chalcote made 4° higher — [illegible] reigned supreme — 11th — 90° — 80° — It took thousands [illegible] — Would it pay [illegible] with my hives by [illegible] to make frames made at once — Set bee or [illegible] hives comes as right [illegible] on the left before the frame engraved — May be set up and [illegible] with [illegible] need not be [illegible] in cellar — made [illegible] — This the perfection of making frames — Rep. [illegible] had bought [illegible] furniture [illegible] still [illegible] — in a [illegible] debt — [illegible] [illegible] different [illegible]

any the dividing wall of these nuclei in large sized hives —

Important! Why! beginner my old duty, merely only given in an effort to the 1st to good class of bees — used not hatch them! even the nuclei to be — hatch out! This is the way of keeping old cast bees in the hives — particular in some case to be on guard — Flying at any time keep the queen off — but bees keep the comb sweet and clean —

Her important imprisonment in hives lee Jr. — (12) 69° 88° — Sun hotter than any day yet — temperature to 68° — until the tree with a circulation of air 90° which in my window 88° — Hurtle thence in the 8th — fifteen around us — Sun entire — queen in a cage dead after a few minutes exposure to the sun — bees in respiration dies from heat! Opening hives bees seemed almost to have disappeared — Important Directions! From time to time I have found queens apparently perfect in all respects, of usual laying size, well attended by bees which have not laid an egg! — Hurtle-Dish which came off with the farmers during August 19th with 9 second 17 queens — Hurtle queen bee quite nuclei become fertile in a short time — two full every appearance having fertile but made laid an egg in the nuclei — left bees I come here to a large class of the queen — Either they from time to time — fertile in 3 days — perhaps dip one or two days in laying the queen — Hurtle Cut an egg in queen — 7th day dispatches them — Evidently been fertile — Cut the fertile queen — one containing legitimate contents in eggs — Queen bees for not laying in cells by their character of nature in regard to my opinion of the queen bees — Hurtle — the supply eggs in queen bees — Hurtle the divisions of bees — sliding forward of frames — some that topped frames in hives in a day or two the bees seem to slide forward to be to check or end of the effect — by cause a perfect crystal queen cut dry — but this then why bees are accustomed to build cells at side for the lack of queen — when the queen is gone — they are aware that the queen is not secure! Color of queen — does not seem fixed until after the fourteenth Count by bees — but not the depth of queen — gentleness — perhaps change in queen — in drones! 189

Hurtle Cages — Hurtle bees are a perfect pest in their attempts to release — the cage — the office and fitting in — Hurtle — but few bees — this — I see they — the little black bees — after a short

which is naturally a little big a little - but it can hardly be an
jetty - but am now of opinion - that he meant to charge the whole
rate of black bee - The black bee is a thief - a very dear bee to
(13th) 70°.86° - Neither of merely the same kind - Gave the queen cell
to a colony just deprived of laying queen - one was opened a little at the
side - just such a "peep hole" as I often make - somewhat again
by the bees! Pollen a very scarce article now - My nucleí here to be
supplied with it - Bees very busy on Jerusalem - get very little
pollen from it - Evidently a plentiful bee-plant in this region in fine
latitude is so scarce - Some bees on Solidago in my fields -
Doubtless get some roots of the right sort - Had a visit from William
Grimes of Geneva, Wisconsin - a very large and thoughtful bee-keeper -
Some interesting facts as to duration of life in Italian queens - See di -
(14th) 70°.86° - Nectar of same kind - Hunter bees at a distance -
Some new queens - one queen cell - Very fair queen evidently one
now thy in laying - Shall make no more nucleí - but begin to unite
them - The lack of pollen for nucleí was partly due to selling
queens for a thirty dollar cage in the spring so to have it
become pollen crushed - for Queen laying are dark comb to very
great advantage - (15th) 72°.86° - Wonderful weather! Bees are now
very active feed begining to manufacture combs - Have three
which are "cast" - Gave one new queen just impregnated - The
other has old impaired Italian queen - Must immediately rear
the queens - Shall now begin to unite stocks - by giving up the
front from colonies which I begin to think up to this time I took
to strongest - leaving enough bees behind with my to have stocks
nucleí - Shall also feel say a big humble face of grief to see
the stocks to be united every night - to is to engage my mind
for the little bee keeping - If I can get the queen to make a good
start and hold her until a few weeks of supposed
been fertilized my stocks in getting in complete good bees for winter!
August is the month for new Italian queens - Got black bee with
another letter from Colon (18th) 70°.84° - No change in weather - bees are working
wonderfully well on Jerusalem - This is a great thing - Dr.
Kentucky - informs me that it is very doubtful will be left to mature a queen
at Mr. Colyer's Italian - I have said in a black bee spirit - 22 of

(17th) 68°.. 84° = At 8½ a very heavy Florida shower — rain during the night — wind
[illegible] at the st. E — (18th) 67°.. — to 57° at 7½ PM — cloudy & windy — bees do
nothing but look all curled up — In a few nucleus saw a number of workers
with their proboscis held so that they could not when mature get out of cells; each
one held by web of a drone bee — will live! Important! All operations in
queen raising uncertain — although the needle has been up to mine how the
usual number temperature and forage has not failed so as to prevent good
nuclei from carrying their cells, (1st) at very large number of queens in good
nuclei and slight increase of bearing fruit have disappeared (2nd) A very large
number of just hatched or quite young queens given to nuclei a short distance of their
queens have disappeared — & yet when tested no means of rearing cells — yet they when
they began queen cells (3rd) Many sealed queens given to nuclei have killed and given
yet could not be found! Bees (4th) Bees have gutted many queen cells —
even when they had no means of supplying the loss — (5th) In some cases bees have opened
their own queen cells — It is hence demonstrated that even in the best seasons queen
raising ought to be pretty nicely got through with by Sept. 1st — the instinct of
bees (if they are to be [illegible]) may, then by about Sept. 1st to control heading be-
should live exceedingly to know if this is so further on — Some laying queens in
spite her sealed laying — (19th) 48.. 69 — Beautiful day — wind S.E. — The heated
term has gone — but the great crop is safe! — This puts an end to our
fears in the prospects of the country for the coming year — Bees to cost for bees — do
not think queens are injured — After birth the most beautiful delicate
queen line colour and do not appear to change until after they begin to lay —
(20th) 48°.. 76° — Most beautiful day — warm enough for queens to mate — (21st)
60°.. 80° — Foggy — sun fairly showed most of the day — To day feel nearly
all the chills have left me enough to warrant healing as good as possible —
(22nd) 68°.. 78° = Beautiful day — foggy AM — sun showed most of day — bees get excited
bee-hunt — feel tired — Healing has impaired to get into hot bees — which would go
out and lost — as to many in good strength, bees — (23rd) 62°.. 80 — Most beautiful
day — Swarms of very good but in large stands! Things very uncertain at this season
(24th) — 66°.. 80° — Beautiful day — Clouds near dark — (25th) 68°.. 78° — Beautiful
day — sun feeling quite warm a day — for hours the which here enough — bees
feeling the queen playfully — done a great many young queens — some very
beautiful queen cells — think that feeding stimulates the bees wonderfully —
[illegible] to get fodder and every drop of honey they can —
Mention to Unfortunate Queen — Often seen almost as great value not secured as
when they are Dispatched a queen of last year from a fine stock here (191)
specimen of perfectly pure — [illegible] a just fecundated queen —
[illegible] honey in [illegible] [illegible] stage [illegible] clouds [illegible]

as good if not better than my best sent for flight of queen and drones
A strong colony with many drones with better queen inclined to meddle
with them — Another with queen just laying does not — and my queen has
laid a few eggs in drone cells & unless cont. amply secured in a cloth —
Really drone drones — do not average much honey in gaps — When a colony
goes off the drones in earnest — they make quick work — Feeding bees —
See keep from eggs laid in Sept. and late hatch (not flying out) be
in shape to winter — very important to feed late in fall in order in shape
in store and housed — Time of laying after impregnation — Figure since but
in one or two instances known young queen to lay in 36 hours after mating —
One mated a few days ago not seen a worker — Queen if not mated may fill
queen with half dozen feet — Safety of feeding with 2 lb in store
can feed any hour of day — after feeding while stifling in room — middle
of day ceiling tested by others & seem a deal quiet — Feeding when
queen raising. important if hives not gathered heavily — When queen
they flutter glossy black — Unmated queen left by in cell after brood
gently dazed out cell fall the wind — Side doors in hives — If marks tops
are used of no use — if not used must extra lifter to get at back ends —
Robbing by liquors — Why hard to get not others to — a time
[illegible] or hives — ~~[illegible]~~ to be get and as fall has been [illegible]
had get robbing — the time of day for putting [illegible]
Smell, greatly resembles like [illegible] — [illegible]
This at feeding in [illegible] mean cage queen [illegible]
26 — 68° — 78° Beautiful day — To elevate outside cover so as not to
crush bees — O. P. Skelton suggests pegs put in under the corners
Have tried them like them much — cheaper than nails — but last thing to
easily cut a hole off when no longer wanted! — Hooker (wooing of royal
cell so as to see motions of queen within) — Saw to day a cell from which the
[illegible] so removed — that the motions of queen could be plainly seen by
the bees! Why not by any means the general rule — ~~[illegible]~~ —
now remaining hundred from Edwin to be taken up — given it to strengthen the other
leaning only enough to get another queen of fertile — Place be very careful not to
try to have too many — Say I can get 40 good ones with [illegible]
queen in my hives — this much better than last Fall — A colony with
queen given get rid of her and raised queen — to day found queen left —
Find use motive of colony raising queen to [illegible]

Design queen — 6th queens laying together — Propensity of queens to "gut" or "suck" queen cells — is it not at its height soon after laying? It seems to me as queens grow older to diminish very much — Splendid weather for corn and sugar — Sunny last day and night also continues — (27th) 54°.. 78° — but 8 A.M. but splendid day — many colonies have very little brood — some have been fed to fast — I have seen many strong colonies hatched in about two hours after first noticed — Opened a queen cell on side — gutted — but queen? Important when queen cells crowded — if one hatches remove comb with cells to another nucleus — this enables to remove just hatched queen — Am getting some splendid young queens — (28th) 62°.. 80° = Splendid summer day — Drumming with left hand to which an Italian queen had been given — drone hood only — some hatched — beautiful — In wings imperfect & attached the protuberance at the base of the wings — Put all two in place of a ripe clay nuc at its queen cast bees — the bees in a so there that others begin to steal their honey — when it was evident that they were to attack & eat their honey in spite of their fighting — I shut up and left — forming water fine & watering pot on the hives — this slackened the zeal of the robbers — Have ready mating queens — sent the last one to one a mile or more then taken in the season — I did get beautiful queens — Had to day beautiful gundaylites of Italian queen (29th) 62.. 78° = Splendid summer day — considerable wind — toward night began to cloud up — (30th) 60°.. 66° = Heavy rain in the night — wind changed to N.E. — much cooler — splendid day — September exits most auspiciously for the farmers — Safe plan of giving queen to old bee hive! — Drum hive — cover with sheet so that others cannot get at it and put in cool place — Shake out bees near their old stand — secure queen in cage — let them stay in box till late in the P.M. — bring out old stock put it on its stand — put cage Italian under it or between its combs — then shake all bees and let them go up — this makes all safe now & away — Important observation! August 29th. I gave to a nucleus a caged queen that had been caged August 8th — Shakers then some days as she may have been imprisoned — (20th) Unaged queen — (22nd) 5½ P.M. — one egg! might have been imprisoned on the (20th) — 26th — In evening nucleus seated days ago bees exceedingly flew much — queen imprisoned — found her to day laying very freely in a strange clay nucleus — it had many sealed queens — she had not meddled with them — 27th. Found a very beautiful queen hatched — old one still laying — removed young queens — 28th — Removed another young queen — some queen cells sucked — 29th — Laying queen dead before hive with an imperfect queen — the wings imperfect — Found very active young queen in hive — I am more and more inclined to think that the instinct for sucking queen cells or contributes to settle when queens have stopped a certain egg —

Many of my Italian queens have nearly cease laying – Do Italian queens cease earlier in Wet than Dry seasons – From an extra large cell a very small queen – much jelly at bottom of the cell – Spermatheca – In an Italian queen quite white – in a fertile one – yellowish or cream colored – larger than in Italian – not so evenly curved – slides from inside pressure –

October 1st 44°. 72° = Slight white frost in low places – Pleasant day –
(2nd) 50° 64° = Autumn day – beautiful – Some beautiful gleanings of my Ligurians – Many very queens gone – NB Important!! Let queen raising be got through with early in August – prepare matters then – depend not at all on getting queens fertile after first of August – let nature be our guide – After now opening stocks and examining queens – In doubtful cases the earliest which are the factory are preferred until the Italian bees – In a few days the bees more from their old locations are all right – No laying about and clustering in strangers like black bees! No fighting – very rare to hear any sorts of fighting – and yet while they are peaceably receiving strangers they resent by others! Italians have much more courage in case of fleas –

3rd — Returned home from visit East — bringing one beautiful queen from Dzierzon — supposed to be from Italy as I sent for them from there — I requested him to send me Honey-feeding bees — Mr C. W. Taylor who has opened all the parcels impudently stole the bees & sent me bees over & over before — Queen was out 19 days — stormy passage — two colonies assumed "dee right" when blown into — one made feeble response — had not an drop of honey and being all the bees were dead — queen seemed right — but a queenless colony would not cluster on her cage — gave her to queenless bees not very glad to get her — next day — dead — no signs of violence — So much for German Industry — But the Mites had 2/3rds of their legs eaten — gave them more bees living they ought to have been put up — Mr Taylor had one — I had the most beautiful which Dzierzon regards as the most [illegible] queen ever sent to America! (4th) Good impudent queen — No (3) — Caucasian Ligurian No 3 — [illegible] 6th 22°. 50° very windy queen — [illegible] — 9th Ligurian (3) laying — Two years ago I had late born queens that could not lay in small nuclei — when put to good stocks they began to lay — Have had a number do so this month — a very good plan to test whether a young queen in a small nucleus is impudent — Young queens if they have a good stock seem disposed to lay when older queens have entirely slipped — To day have been making the long winter passages — my stocks are well off for honey — and needs stronger in bees than last year — this owing in part to feeding — Am now preparing for and the preparation of the bees for winter — (8th) 24°. 62° — Splendid Indian Summer — Impudent! Ligurian bees here in all respects more severe than black bees — seem often disposed to eat wax to be used in comb building — my wax showing plan which failed with black bees may answer here with Italians — I have almost lost all confidence in any plan for artificial combs —

9th — 34° 60° — Beautiful Indian Summer — Made winter passages in ten stocks yesterday — Impudent (9) — To winter properly — bees ought to be able to assume a globular form in cube — an ordinary good stock would not occupy more than 8 inches square — This shape should have the power of enlarging or contracting at will according to weather — expanding from within, out — or contracting from without, in — This can only be effected perfectly when the bees have a free central communication from comb to comb — In this way only can the bees that draw together on all sides comb pass in — They cannot be defended only to do it by passing above them or sides — The flowing hole even when not filled up cannot be [illegible] — bees in contracting often nip it — and perish — with the long slot they can enlarge or contract at will occupying few or more combs according to weather or [illegible] — Now let the three

combs comes here many empty cells for them to lie in so as to endeavor more than they could not get into cells – and here some cell fullest combs near them – and the bees will have the right conditions for uniting as far as honey and position are concerned – It should be remembered that wind is much colder than combs and that will make frames in winter hives there is about 2/3rds more of window surface for dampness to endeavor upon – hence the absolute necessity for a free escape of moisture – By cum cots, old woolen garments, strips mats &c this can be secured without any risk of too much heat being carried off from the bees. When there is upward ventilation the lower entrance may be almost closed – and thus no more heat need be lost than when air is close above and the present moist and dampness it is necessary to leave a considerable opening below –!!!! Important – Conditions of success for uniting – as regards movements of the bees – A glide or cube contracting or expanding centrally from without inwards or from within outwards at will!!!! 9th 30°

(10th) 30°.. 49° = Raw wind – In P.M. was able to finish cutting of woolen hedges, covering combs and uniting stocks – seems a month late for above Eight – Have not seen in uniting either nuclei or stocks the first sign of quarrelling this Fall! and yet no precautions at all taken to prevent it – A few colonies here hard –

(11th) 39°.. 12th – 24°.. 58° – Splendid day – (14th) 32°.. 62° = Splendid Indian Summer –

(15th) 45°.. 64° – Splendid Indian Summer – (16th) 37°.. 68° = Splendid Indian Summer –

(17th) 55°.. –

(20th) 26°.50 The last week has been most beautiful Indian Summer – No day so cloudy with fitful gusts setting in ..... Queen at intervals was removed to pierce combs as late as possible – (21st) 28° 50 Beautiful weather – Rain very much needed – streams very low – Bees evidently enjoy the long unitedness very much – (22nd) 29°.. 4[illegible] Cloudy P.M. with raw wind and appearance of rain – Last night a beautiful Ligurian queen laying – hatched in a small nucleus – eggs first noticed on the 9th – Queen removed on the 12th – Bees formed nearly every night while she was dwelling – Her eggs noticed not have been laid by 6th – (23rd) 28°.. 48° – Overcast most of the day – (24th) 24°.. 50° – Splendid Indian Summer day – perfectly clear and still – very little wind this month – very dry (25th) 28°.. 54 – Splendid day – (26th) 28°.. 56° – Magnificent weather (27th) 29°.. 55° – Glorious Indian Summer – almost perfectly still – rain very much needed – even in the small nuclei the long dist unitedness appears enable the bees to resist these forty nights and perfectly better than without them – would it not be best to unite with them without any hiving bees, combs be then combs be in that then – (28th) 24°.. 43° – Cloudy – some day – A beautiful young queen reared in a quite small nucleus – Eggs first noticed on the 9th – queen removed on the 13th – (29th) [illegible] Dreary cloudy – as most of snow fell last night – Is it important? If new [illegible] work [illegible] after you [illegible] the old ones – [illegible] the month – [illegible] – [illegible] has come on [illegible] queen cells – and how [illegible] a nearly clear it all combs be being the [illegible] place – so that they may not take a meandering and [illegible] – [illegible] – [illegible] and [illegible] – (30th) 35°.. 42° – [illegible] R.S.J. from [illegible] queen was taken up the 13th about 16½ days ago – The queen [illegible] in a small nucleus – on [illegible] of good size and [illegible] that time the bees

queen cells - uncapped - If I can winter over two or three nuclei I will see what in the spring they are likely to do in those layers - (35)
until queens begin to lay or are fed to lay? May not disposition to pair cease
caged in a nucleus where another unfertile queen has been lately? If she lives
till drones and is then liberated may she not pair? May not caging young
queens even for months cause them to pair when liberated - not being fed to lay?
Some rain a mere sprinkle and more wind than for a long time December (1st) 60°
27°.. 39° - Cold wind - but beautiful day for the beginning of winter - yesterday and
to lay have prevented my long shaving winter passage and my improved plan for getting surplus
honey - both as it seems to me substantial advance in practical bee keeping -
2nd 36°.. 63° - Strong Southerly wind - Sun red as in August Summer - bees flew very
briskly - 9 P.M. 50° - (3rd -) 50°.. 65° - 9 P.M. - 64° - In A.M. - Showery - Saw a
drone in the wing in colony which returned its drones so long - (4th) 58°.. 48°
Showery during the night - a truly blessed rain - Cisterns many are
exhausted - many wells dry - wheat beginning to parch - Wind changed
to N. cloudy all day - A beautiful Ligurian queen given me in Cincinnati
to lay in nucleus A.M. 7th - Gave her to a fence colony A.M. 8th - To day found her
laying in nucleus A.M. 7th - Gave her to a fence colony A.M. 8th - To day found her
brood hatching and a few eggs - no unsealed larva! (5th) 37°.. 39°.. 34 - Sun - cloudy -
N.E. wind - Expected two queens caging from 27 hives - will received - Intend to
get an imported queen into a strong colony (6th) 28°.. 38° - Cold drizzling rain -
(7th) 40°.. 38° - Cloudy - rain ~~(8th) 28°~~ Good rain last night - (8th) 28° - 40° Beautiful
day - bees flew - some - Imported or changed queen has laid a number of eggs - (9th) 32°.. 40°
cold drizzle in A.M. - clear at sun set - (10th) 30°.. 49° - Bees flying briskly - beautiful day,
(11th) 28°.. 50° - Cloudy most of the day - Imported or changed queen has eggs and larva!
Another queen examined to day in a very much stronger stock had not an egg - This
I carry with the large Italian stocks - (12th) 48°.. 53°.. 24° - Bees flew early about noon
[illegible] changed to A.M. - stay cell cured - queen feeding rapidly - Two more very strong stocks
[illegible] no eggs - Put up cabinet to-day - [illegible] - In looking at stocks [illegible]
[illegible] in the cellar - to [illegible] and [illegible] (13th) 28°.. 26°
[illegible] Cloudy this A.M. - first winter day - very [illegible] (14th) 2°.. 12°.. 6° - [illegible]
[illegible] queen reared in cellar - [illegible] a number of [illegible]
[illegible] - If they have taken [illegible] to their in cellar - If they had [illegible]
the long winter passage they would have [illegible] before this - (15th) 11°.. 14°.. 5° - Clear - some [illegible]
My stock of garden has caused great delay in cutting down - On the 13th put a [illegible]
of frames of a strong stock no honey bound on - they started up at and for hours did not leave it,
After even in this cell [illegible] when I put cabinet on the bees swarm up a lot of frames - [illegible]
[illegible] attract their attention and is carefully examined - notice a few bees are alive [illegible]
some just at the entrance of long passage - [illegible] - [illegible] - [illegible] cannot always do so - to
call every bee to take care of itself - Last night frightened in some manner - [illegible]
quite some this A.M. were suffering - large number frames of [illegible] on [illegible] - [illegible]
left [illegible] - [illegible] laid under cover - Last night very cold - bees [illegible] large [illegible]
loudly - (16th) 8°.. 27°.. 22° - Cloudy at 9 A.M. began to snow - In putting cabinet on [illegible]
this P.M. - noticed some curious things - Day before yesterday what appeared [illegible]
of the hives not filled with proper cells - As the honey-boards were left off and the [illegible]
quite [illegible] with comes [illegible] I felt my [illegible] as to their not having an [illegible]
[illegible] a lot come to light on cabinet found lots of frames covered with dead bees,
[illegible] frames not a live bee could be. Cause! In [illegible] the cause [illegible]
[illegible] cabinet [illegible] on it! Bees had in the long [illegible]

[illegible] carbonic acid gas! Left [illegible] in
Bethesda Lunatic in African Race-Guard — Remained here to warm, [illegible] to
coals warmed up — prepared and be so left here well return to the Road — In the
clock with cab once put on yesterday but not wished as yet to allow of [illegible]
[illegible] — also prepared meal to that very [illegible] — [illegible]
[illegible] very cosy at — [illegible] — In left the inclosure the [illegible]
filled up by [illegible] — The cow into which her feet crowded was so useful as three of
[illegible] left the cows got out of the crevice — did not get at, but I slipped down [illegible]
[illegible] — I have been for some time [illegible] that the
[illegible] did not lie so easily in the cows or [illegible] — but I went [illegible]
[illegible] the side where the entrance was left at the [illegible] — [illegible]
[illegible] — [illegible] — [illegible]
[illegible] — [illegible] — [illegible]
[illegible] —

Found a queen of a swarm dead before hive! In setting out a swarm yesterday from cellar in one on twenty stand - charged on a few minutes noticed some bees leaving it! Got to the cause - It was bees as they left the queen was much more little than the one to be the usual size - Kill bees - (26th) 48°.. 58° - Dense fog - birds singing like Spring - Sun shining at noon at intervals - P.M. - some rain - Bees have had a splendid chance to clean off their hives - (27th) 35°.. 42° - Cloudy - quite heavy rain last night - (28th 32°.. 29th 23°.. 35° - (30th) 23°.. 36° - Splendid P.M. - bees flew a little. (31st) 32°.. 35° - Snow - a few snow flakes - January 1st - 1860 - 32°.. 35° - Cloudy - (2nd) 20°.. 34° - (3rd) 19°.. 36° - Splendid winter day - (4th) 12°.. 18° - Clear - (5th) 4°.. 22° - (6th) 14°.. 45° - Clear - strong southerly wind - (7th) 24°.. 25°.. 10° - Clear - but very windy - (8th) 1°.. 18° - Very windy last night - (9th) 2°.. 28°.. 14° - Clear - beautiful winter day - (10th) 22° - (See found 7 bees - Journal for 1868 - Continued) - May 28th - Find very little trouble in setting these style of honey boxes on strips 1/2" thick laid over the fixed end destroy on rillets in sides of hive - bees are very easily kept out of the way - move to them in boxes placed with usual hood bearings on the honey board - To day put a double set of boxes on a strong stock - smell ones under take ones to see how it will work - Shall try a triple pile of small boxes on one strong stock - also the back arrangement for small boxes on one strong stock - also boxes with a new assembly 1/2" strip on one or more honey boards - A half dozen ripe strawberries to day - Never saw good stocks of bees so nearly exhausted of honey as this season - Colonies with 6 or more of the ten frames well filled with honey until to day when opened would settle up one or nearly all their honey! If I had fed more after the failure of the apple blossoms such stocks would have been strong - but I did not see need of it quite soon enough - With blooming strawberries feeding of flour and honey - and continued plow so as to make stocks relish on for honey when strong - this is very good weather for honey - (29th) 64°.. 72° - Slight flash of rain last night - very clear at sunrise - bees getting much honey - wind springing up with clouds - honey ceased to come in - the smell gone from the locusts! Shut up P.M. - smell came back and honey came in! Stocks just get enough to encourage breeding - If honey at last comes in abundantly then will be a great force of bees to gather it - If before the locusts left off flowers the good stocks will be found part of cells not filled with hard unsealed dark honey - Bees considerably on white clover - In a number of the 13 frame hives where I have put four empty at sides I give empty frames with my new guides - An encourage the bees more quick in new comb than in old ones - Queen more anxious to lay in them - (30th) 49°.. 72° - Bees began early on locust - clouds came up - did not rain very long - By every quantity not sure - bees very active on clover and plums - Sales in P.M. - Locusts very sweet - best day for honey since apple blossoms - Great drones and queens with fine children and ancient drones part of body - Have flew - Came once with bees - Queen flew! Hold together and allowed to fly with thing attached! Feel more confident that artificial [illegible] by hand drone and queen fly or have together - If Mr. Langstroth got

a queen impregnated by bying her legs — shows that thing does not prevent — suppose a band of fine elastic yarn is used? Hope that I am now on the track at last — one band might be used for one for each insect — did have them ready — shot off them to get them into manner fleece "insectuet" — 31st — 53° 76° = To day bees get more honey than they have as yet got the whole season! This perhaps too strong — June 1st — 50° 80° = Saw a greater day (if one as great) for honey — Bees began at sunrise and worked as long as they could see — The swarm on the flying board & ran in some strong sticks almost like a returning swarm seemed queens — Locusts — Peppermint — White clover — Tulip = In many tops of a buckwheat counted from 4 to 6 bees at once — They will ~~before the flowers~~ have opened hang them on the pedals in shape — seems to equate for the pedals and the bees seem to be on hand to lick it up as fast as it exudes — Tried to ~~[illegible]~~ bying queen and those could not get them to fly much — suppose they were tired let them fly in a room without a strong to confine them? Saw a large mass of drones crawled out of a hive yesterday — and yet honey is plenty — they had begun to carry them before plenty — 2nd — 60° 76° = Thunder last night — a little rain — Bees pickering — before this A.M. until it clouded over for rain — Rain began to fall at 11 A.M. — In a short time 1 3/10 inches fell — a glorious rain — a blessed gift of God — for all the crops — for the bees — gives the clover a splendid start — fields are getting very white with clover — blossoms up very well A.M. — but not near as early bees — by sun-set — Locusts began to smell sweet — Thus far this season have been unusually successful in [illegible] queens to replace those sold — almost every one settled [illegible] has been accepted queen at once after removing the [illegible] 3rd = Very hot — sun clouded much of the day — very good day for honey — but not so abundant as some hot days — Saw many bees from the clover & get honey from it — Dine [illegible] Date [illegible] [illegible] honey abundant — The [illegible] for [illegible] — [illegible] all entry (hard) [illegible] of [illegible] — the hard — [illegible] cost of [illegible]

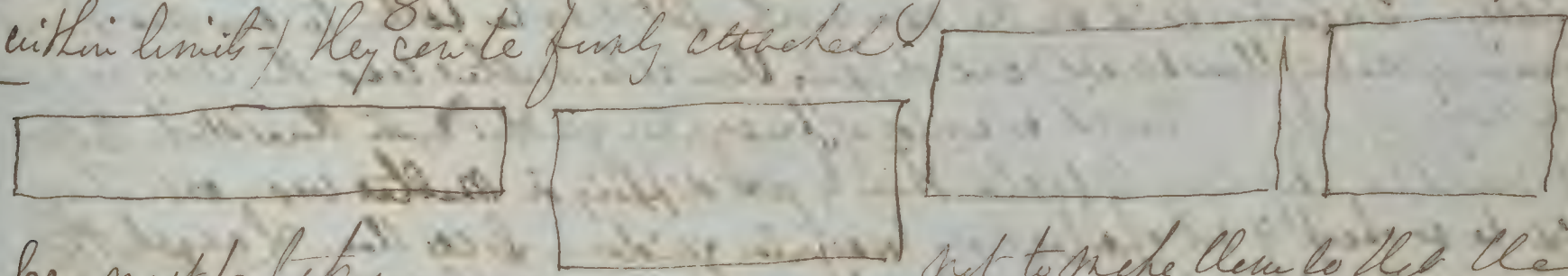
on the outside – then the empty frames with their wax guides – I am satisfied that this works much better than to put empty frames between full ones – It imitates the natural proceedings of the bees (new swarms or stocks with bees only partially filled from previous year) in comb building – Italian bees do seem to be more inclined than black ones to building chase comb – Stocks or colonies with young queens will build much chase comb – It will be necessary in the Spring to remove this and this is the best way to do it – Where one half more or less of the comb are chase – cut – and fasten all chase in one end all unbroken in the stew! Important this = Such chase combs to be used for storage of honey in supers or put on outside where queen will not use it – may be used later in season to be filled with honey when bees would no longer work in boxes – try to keep new chase comb in one frame and old in one frame – the old can then be emptied by the machine = Oct 16th.. Sun very hot – clouded some – Since mostly gone for honey and bees filled – also very thin & little in a right state for age – Has been an admirable day for white clover honey – Second hatch thickened – Much more comb this season than for any four or five years – One swarm found on tree – then absconded that before – clouds appear for some distance – but made for the north! Some of the bees have thickened – Bees beginning to be more in sweet trees – expect them in a few days to begin comb building in them – Important – The Concluding plan will probably cause many of the stocks to throw very large and swarming swarms – Do much the better – for it seems to me that in this way more honey can be got than if they did not swarm! Eggs and chickens both! There for some years been of opinion that good natured swarms will do far more work than the same force in other swarms or in artificial colonies – By giving the new swarm say five of the 12 frames and the bees they will probably work as well if not better in the bees than if they had not swarmed – and by giving the rest of the combs with the bees that stay behind to a new swarm hereafter with a young queen they will make a very good stock

November 26th 1800 Sun. 4th – Our Egyptian Lacem [illegible]
G. F. Worthy [illegible] came of Steamer
City of Paris for Liverpool – Mr Worthy of Exeter England had for
her up most admirably in a Shea Worthy [illegible] Fine – Did
not get her into the 12th – Mrs Dent to Pastor Wachsen in N. Y.
Blessed Lord St Brotherly – found them in Blessed order – queen all night
[illegible] – Did not [illegible] again to bathe queen – late 9th – Here is
Worthy – hustler – alone to fly in Blue Lacem gone! Set a Florida
queen [illegible] later for a few days and gave to a number cent for a
[illegible] getting [illegible] Worthy Egyptian – Bitter disappointment
[illegible] Life of [illegible] be one good [illegible] Sun. 12 – B Egyptian and one Silver cent
Come in Bonner Saturday for Worthy – What yet be [illegible]
with [illegible] No. 13th to let them fly – Silver queen dead – [illegible]
(sweet) class – too much [illegible] in new comb and too [illegible]
Opening next day Egyptian queen [illegible] dead and gone [illegible]
[illegible] Bonner – 3rd all right – too cut for leg to fly and only [illegible]
15th – Opened [illegible] at Pastor – [illegible] to give them new legs – Cyprian
queen – [illegible] to Oxford – queen [illegible] – Too much hinged to
[illegible] – should to have half [illegible] left [illegible] and to have [illegible]
[illegible] – 48 hours more here [illegible] to [illegible]
[illegible] – [illegible] in cyst – [illegible] to the higher [illegible]
[illegible] – [illegible] is [illegible]
[illegible] time, [illegible]
[illegible] Egyptian to [illegible] see my [illegible]
[illegible] – [illegible] – [illegible]
[illegible]
[illegible]
[

not like the office left between top of fence & the cols —
Dec. 6th — Flies had a few of Bl. Indian Senna days — lies are
fast into winter arrangements — To day made some very delicate ex-
periments in my hair — see Vol. 2. Ri — I seem now to secure advantages
very great for my little additional expense — Dec. 10th — 14° = Clearly rest lively —
(11th) 14°. In house with all pieces of carpet fast nailed down, lay lie once
up to carpet — fast on bottom and lie on carpet; thinking that deafness
perhaps through carpet and direct hearing — it may be preferable to feel
bottom board off of carpet — (22nd) Neither has been call for the
season — as low as 8° = but few days lies as yet on bottom board and
letter pleasing with carpet arrangement. Nor anything yet used —
To which I have letter done to improve hearing — See Vol. 2 — By
getting a simple wire for raising from above bottom board — Having now power
get rid of only objection to improved bottom board — Flies
to elastic frame on which I fasten carpet at pleasure — Flies
bottom board 3½" only above floor board — So flies 13 inches under
bed can reach it from bottom board — Dec. 27th 8° 12° 4° Wind 22d from
east 60° with other thinder — since then cold with some days —
Neither has been very cold at the East — (28th) 4° 16° = Been fast since day —
deafness comes off through double thickness of carpet, but has fifty days
cold weather still through double thickness of carpet, but has fifty days
cold weather — (29th) 6° 20° = Snow accumulated — not much wind — heard
of burning stoves at the North and East — (30th) 5° 18° Steam — Tops of
lines free of frost — Carpet with cat tracks with water — Inside of house with
wide lapped seams full of frost — even although much has escaped at
from back space carpet space made by the fabric for frame to lie
on — Have devised (see off. Dec.) letter flies for not having in our ad-
Easy to see how hay with hard lifter from mast be bad in cold winter —
Lifting accelerates hair — no chance for deafness — does not matter as day
as in single bag — (31st) 10° 20° = Overcast — Jan 1st 1807 = 14° 22° Beautiful
bright clear winter day — (2nd) — 2° 22° Splendid bright clear day — Snow frost
in back of hair — (water frozen) — Bees in south fly as now as in Germany — when no
ice can form — not so lively off as in other other hives — Bees frost or deafness can
form and frost there many days to get frost (3rd) 0° 30° = Bright — calm —
bees flew considerably — wishing of which bees fly the same the Hives — flew down hive
with to see the superior radiation and to see if Hives — (4th) 10° 40° — Splendid bright
clear day — Bees very lively of which bees flew yesterday — Hives seem lively
very bees notable already! Bees in full colonies flew least of all to day — Removed
fine weather from cellar three week queens — Bees with queen hives — added to
Hives — fear for the queens are frozen — Flies [illegible] come with cat fast — Bees — 203

[illegible] in [illegible] [illegible] [illegible]

first pollen — To day gave a good nucleus an empty frame between their hives with three of my wax pocket foundations — fed them — In a few hours found the center one — the largest — well adhered — This — the upper section with no cells sketched in it — the lower part with cells were adhered! The other guides just starting — This mode of securing straight combs more promising than any other yet devised — and if they can be made say two or three inches long and one deep — or larger one deeper we should not only have the strength of the bees leaving the thin buccyulen edge avoided but we could utilize wax most admirably — However hard one deep — (within limits) they can be firmly attached.



Care must be taken not to make them to thick the bees will build the combs leaning — A few experiments in large stock hives develop the proper limits as to size — March 19th. The bees have sketched out cells in the middle part — To get thin plates of wax warm up the wax in hot water — roll it out — If small crescent shaped plates are found best — (the bees perhaps spending more time in working out the larger ones then is gained by size) Perhaps they not be punched out with a punch which would punch half a dozen at one blow? Thermo 60°.. 66° = Heavy rain last night — Wonderful growth of wheat and grass the last two days — 18th = 35°.. 60° — Splendid day — Bees in A.M. very greedy for flower — In P.M. bought in much pollen — honey or sugar tree sap — As soon as comb building begins quite freely — ought to remove poor combs into supers and encourage it below — Dry inspect queen cousing for sale — and few new colonies my cases have many of them become very poor — such combs much more liable to side attachment by bees — (19th) 50° — Rain in A.M. — Am giving all the colonies some sweetened water or very thin honey water — not to stimulate — they expect it — Too cold for bees to get pollen — take the flour greedily — 20th = 36°.. 42° — Windy — very raw — a decided cold clear up — in intervals of sunshine a few bees in flow boxes — 21st — 25°.. 34° — Freezing — dry cold in A.M. — P.M. sun come out — and bees active in the flow boxes — Cases do not yet lay in drone combs — cannot anticipate the season — 22nd — 25°.. 50° — Bees get no pollen — greedy for flour — 23rd 36°.. 69° — Bees getting pollen very largely — some thin honey — saw queen just laying in drone comb! Gave my wax guides to a weak and a full stock — in two honey cells sketched — 24th — 57°.. 80° — Thunder and heavy shower last night — bees laying very well — I will stick hive stocked and the two or three places besides the three wax foundations — Make them smaller — are more of them? (25th) 50°.. 42° — N.E. — heavy rain during the day — thunder — not a bee out — Dry corn cobs nailed for an apron or alighting board — (26th) — 38°.. 38° — Stormy N.E. wind — rain — very sour day —

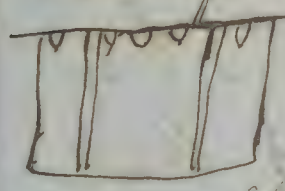
Bees fed twice — If I had been home this have fed them more liberally to be sure and prevent stock to heading — especially drones — Such weather calls for great judgement on the part of the bee-keeper — Heavy frosts — probably enough to kill stock —
(27th) 30°.. 46° — Much rain last night — drizzly during day — at one time a few flakes on the wing — Fed thin warm sugar syrup twice — Wind now N. E. storm — snow storm — Egyptian Queen seems to be laying drone eggs mostly — have given her a piece of hatching brood to give her a very few and more bees — Fear that this long cold spell has checked heading in spite of feeding — (28th) 40°.. 46° — Wind still N. E. — spits of rain — clouds like away some before sun-set — Colony to which you may wish guides, new queen in a large frame here followed them admirably — Queen has laid in the new comb — It may be better to use more than three — by making them smaller and dipping them into melted wax they may be put on very rapidly — Would a union of bracyclen guide with wax work better — It would be very easy to fasten them by just dipping in melted wax — and they will be as steady if not steadier than bracyclen guides — I call them — Langstroth's wax-comb guides. We fed bees twice to day with thin syrup — saw eggs laid in drone cells since this long cold storm began — It is more like a January New England than Easter like anything I have known since I came out West — 29th — 36°.. 60° — Splendid cloudless day — Wind still N. E.! It has "storned out" — Bees bring much pollen — some honey — 30th — 36°.. 62° — Splendid day — Wind N. W. — a week of N. E. — By feeding bees have been heading since — queen laying drone eggs — A strong colony had 3 S. W. Guides & Langstroth Wax Comb Guides given them and made two other starters — There were drone — eggs in them — to day find two of the drones changed (as they enlarge them) into worker cells — an exhaustion of first-hatched — Seen no in this latitude peach trees so free of the peach blight — (31) 36° Fifth day — repairing combs & many nuclei — have only a very few black bees — left in stocks not yet changed by Italian Queens — and yet 9/10 of age the nuclei have black bees! — Wax Guides just moulded with the fingers and set on in heat of sun seem admirably — much better than thin plates — so easy to unite by the bees! How little that simplicity is the best thing often needed — The triangular edge enables us to set these guides much better — see where to put them and have a place to squeeze them together and attach them — So doubt the guiding edge and wax guides make together a better thing than either alone — April 1st — 42°.. 70° — Windy — bees get but little — Put on Langstroth Guides in the house — Weather was fine and quite warm — 2nd — 25° Wind changed to N. W. — grew cold fast — freed D. Hill's bees — saw how black queens spread their brood — His bees have not been stimulated much compared with mine — Have stock out before have supplies — got back by aid of air-cell — Lost to each one ...

3d – 25°.. 50°. – Wd closed to S. W. – bees flew not much windy – feed twice – they took fresh again – By feeling they are kept up to the mark and do not feel much the clotting – queen lay in drone comb – Received my dollar this from Hamilton – Am much delighted with the flow – Am now strongly persuaded that my bees will winter well in the open air in Minnesota – and that it has been brought to a completeness far in advance of any thing yet made – 4th – 30°.. 45°.. 24° = very strong wind – 8 A.M. cloudy – a drift of rain – wind passed to N.W. blew very strong – At 1 P.M. – clouds in the light of moon heaped up like masses of snow white – blue almost black looked wonderfully distinct – seemed as though there was immense depths between clouds and place – never saw the lines of demarcation so distinct – 12 P.M. – 24° = (5th) 8 A.M. – 18° – 6 A.M. 18° = highest 38° = Fruit buds nearly expanded – first in bloom – blow white like snow! A peace hit a very dry one – buds of fruit trees appear uninjured – ice in water bucket unfrozen all day – Queen scented white violets frozen! – Must further South not have suffered (I fear) very much – South – Must have been very cold in Egypt to freeze up great snow storms – At sunset clouds had a soft flesh-color – Night the next day wind moved round to the South – (6th) 22°.. 48°.. 36° – Wind S.E. – softened so that at noon bees flew once – began to cloud over with new wind – Bees greedy again at flow buds – two cut to get pollen if fruit bees not destroyed it – sweet scented violets frozen – Helped a mixture of rye flour paste and honey – to prevent check to breeding – bees clean it greedily – Found two stocks queenless – both had queen laying worker brood – in one no hatching – the other much hatching – and 5 sealed queens – At sunset began to clear and increase – (7th) 34° – Ground entirely hidden with snow – wind N.E. – Quite a number of drones have hatched from the end of my mismated Egyptian Queen – She lays very few eggs – and I fear that most of that one of them are drone eggs – Have now a number of queen cells under way – and shall form nucleiers soon as the weather softens – Not but ready to try my plan of artificial impregnation – Hope for success – 8 A.M. – Strong S.W. wind – bees out some in flow buds – 9th – 26°.. 26.. 28°. Strong N.E. wind – began to snow at 6 A.M. – has snowed all day – almost a gale – 11 P.M. – 27° = 10th 1 A.M. =

Wax Guides – Tack the edges may be dipped into melted wax so as to form thin wax edge below and edge! drops of wax curling make stalactites! – The scap stone to heat large dish and finish it on! – Left of sun – and finish it on – can do this any moment – this pretty bee-

(16th.) On bound the cars from Cincinnati to Hamilton an idea for improving frames as has occurred to me — Get inch boarded board — with saw cut or any better way make pieces like at the pins only have pieces say 1/16 thick below upper part — which should be at least one inch long — so that the nails from upper part of frame can hold in it — let lower part lap over against bottom rail of frame and be sprigged to it — now in that any extra pieces you have the frame very stiff — Perhaps — let these thin pieces be sprigged to upper as well as lower rail — Wed 2 w (8) = 20 1/2 50° = N.E. — Yesterday A.M. — before day rain — 42° — Grew warmer — by noon bees flew and kept in some pollen — Weather and condition of bees have been very remarkable — Before the stormy weather began bees were unusually quiet — had taken flour so freely that I did not give them any as they would have taken for fear of their murdering their cells — Then the stormy weather prevented my out. I began feeding twice a day the flour syrup of the Quinsies — hoping to secure a large supply of honey — 21st was fed twice a day — and seemed to be greatly charmed — I left home on the 11th — was absent till the 18th — Gave directions to have flour syrup continued — On my return saw a small piece of comb on the ground covered with bees edge out the tea-kettle! Never saw the like — on opening hives found but a small amount of unsealed honey! — Bees had been suffering for want of pollen and water — The two days previous to my return they had got large pollen — my queen was laying eggs quite freely — On my hives the house heating had been defaded — Expected flow in the bees — greatly deserved! — 17 and 18th windy and unpleasant — but bees took large amounts of flour — Yesterday although they got pollen they seemed almost crazy after the flour the cells were clearly with honey — Peach trees pretty much used up the pollen and flow stage and willow blossoms — Bees flew constantly in P.M. — cherries and peaches beginning to blossom — Rain in P.M. — A great laying of eggs since flour feeding has been resumed — (21st) 43° .. Magnificent day — Peaches beginning to blossom — 23rd — 24th Perfect day — peaches, plums, early cherries in full blossom — Bees have evidently suffered

for want of pollen — few bees hatching. Seeing that the bees so great falling off in hatching — hives very full of honey — P.M. Wind S.E. to S.E. cold — bees in P.M. did nothing — fed for stimulus — Examined comb building in new style of frame — pleased me better than anything I have yet seen —



Fine B.M.G. seem best — (24th) 36°.. — Fruit trees green present and bees flew beautifully — getting much honey and pollen — Made nuclei — stop up with wax — do not piece it but put into cellar — Bees make a large swarm while fruit bees in blossom — (25th) 42° — Yesterday P.M. wind S.E. to S.E. and at dark began to rain — cold and dull this A.M. — so long as bees get pollen enough and I stimulate on short days by a little feeding, delaying nuclei till better — comb filling in the hives — Sugar maple in full blossom — P.M. warmer heavily during the day — fed thin syrup — 26th 40°.. 60°. N.E. — Splendid day — bees very active on fruit blossoms — pears in blossom — (27th) 40°.. 70° — Splendid day — made many nuclei — much honey gathered — bees very strong — drones abundant — Fruit injuring semen — late too [illegible] — Bees made it larger with rubber bottom adjusted to syringe so as to get more pressure — Comb building well — (28th) Warm honey weather yesterday P.M. — Rain in P.M. — made nuclei (see B(1)) without trouble from thin honey — (29th) 58°.. — 72° — Splendid day for bees — wind enough to prevent them from getting too much honey — made nuclei — Sugar maples have blossomed freely — what the same bees with peach and cherry — 30th — 54°.. 72° — Windy as yesterday —. Queen laying drone eggs — Got a very strong colony from which I had removed all drone comb except two which had eggs in drone comb at the back side — queen had put drone eggs in those cells where she had to leave the wood to do it! In the last comb no eggs in the worker cells although the drones are nearly ready to seal — at dereliction that the instinct of the queen teaches her when to lay drone eggs and when not —

May 1st — Warm — 56°.. 78° — Bees very active late in P.M. on apple blossoms — fragrance powerful at dark Nuclei strong — strong with honey all night —

(2nd) Warm — very rainy in A.M. — wind S.E. to N.E. — cleared up in P.M. — an inch of rain fell since last night — (3rd) 70° — Bees get considerable from apple blossoms — in full bloom — also dandelions — bees go coming in to blossoms — Have sent letters to Ma for bees — enough out to swarm! — (4th) 60°. Have made 33 nuclei — very hard for queens here hatched — Made nuclei to keep at my door — work them at dark — usual — [illegible] — [illegible] — feed — keep shut three or four days — [illegible] — [illegible] — to set nuclei down in — to shade — dark if needed —

(5th) 78° — An inch of rain fell yesterday. Laid the last tile in the drain in the Leary Flower if not laid the whole distance it has filled with water — cared in be — Sounds 6 P.M. bees began to get much honey from apple tree blossoms (6th) Close — sultry — bees working strongly on apple blossoms — 10 A.M. heavy rain — 2 P.M. bees again working strongly on blossoms — About 8 P.M. tremendous rain — part of my dam gave way — never saw more surface water — (9th) 2 1/5" inches of rain fell in the last 24 hours — tornadoes, fireballs, lightning behind N.E. — cold — bees stir but little — 8th — 39° — Beautiful day — but cool — bees work but little — too cool for impregnating queens — (9th) 40°, 64° Beautiful day — Our bees are now in splendid condition — Stimulative feeding all important where Spring honey so abundant — Bees have got from the first blossoms only enough for immediate use — This is ready more of them to enter boxes when second blossoms — this the point to be guarded in this location — Too cool for queens to mate — (10th) 50°, 64° Rain to-day — wind S.E. — P.M. — sun came out — late in P.M. of to-day and yesterday bees got considerable honey — Black eye in full blossom — apple trees nearly out of blossom — Cleome has prevented bees from getting much honey from first blossoms — enough got to keep them in the best condition — rapidly exhausting their hard — (11th) — Bees get some honey — pleasant — 65° — Our queens impregnated! (12th) — About 10 A.M. began to rain — wind N.E. — bees quiet — raised queen cells day — high wind after dark — (12th) 50° — Steady rain last night — have an Egyptian queen which has become a dose layer — very fertile — gives chief fear her — Starting to impregnate some of them from Egyptian drones — "Mes fou Hector" from black drones — have saved a hair queen from the impregnation by Egyptian so as to get back to pure bees — this would be as Malpighius says "mera felicitas esperandi" — One inch of rain has fallen in the last 24 hours — cool — steady N.E. — Fed all the stocks to encourage (13th) 49°, 52° — Yesterday cleared the place for impregnating queens

by injection – Put a rubber bag on the glass tube to get sufficient power – Pull drone to pieces – get his seminal receptacle into fine mouth of tube – open valve of queen – inject it! – Appeared no trouble except in opening valve – Will inseminate some eggs of my drone laying Egyptian queen (just discovered she is now very fertile) with Egyptian sperm – Have piece of glass now running with hot water to keep the delicate semen warm – put eggs in cells and give them to colony eager especially to raise queens – inseminate some with semen of Italian – some of black drones! This also is successful – "Veritas felicitas et fari di." (14th) 50°.. 56° – Yesterday wind S.W. – Sun day – drizzle at intervals – fed bees – To day at 9 P.M. sun almost shone – some flashes – bees got bee-bread and some honey – Stocks getting very light in honey – 15th 53°.. – 16th – 53°. 66° – Slight shower in P.M. – bees get honey – stocks almost out of honey – fed – Weather black bees building their combs – 17th – 50°. Pleasant – bees get some honey – 18th – 46°.. 64° – Pleasant – bees get but little honey – wind S.E. – Buckeye main suffering – Many colonies must be fed – old honey mostly used up in the stocks – Iron fact that they have got so little as to need no more! Prospects of honey harvest very feeble – Scarcity time upon late – stocks stronger and less likely to have upon them by inclement weather – Wet and cold have caused an unusual doubt of the will be alive – If bees not fed they must many stocks feeling many of them and some would die – Bees now feed twice a day – unless honey comes in more freely – (19th) 40°.. 62° – Fast in low places – Wind still S.E. – Not little honey got – A number of young queens were impregnated to day – saw a number captured by their own bees – Many queens which they are not captured when bees have not the care of intended drone; Hence lost this – Have known a strong swarm with young queen to capture her day after day till the hive was nearly filled with drone cells! Found a dead virgin on 9.2. in nucleus with my Egyptian Queen (drone layer now) – Dear E. queen gone – but have many drones – they hatched on Sing a more hours less than 24 days – (20th) 43°.. 62° S.E. – Pleasant – some queens impregnated – Queen has laid in less than 36 hours after impregnation – Inspected 2 P.M. – laying fine 5 A.M. – neither morning nor evening (21st) 46°.. 69° – S.E. – Beautiful day – drones in full [illegible] – Drones very handsome from queen whose drones last year were very black – Not unusual have prevented bees from getting much from first flowers – many almost out of honey – many have active – A strong feeling to many [illegible] consequent to Second flowers – Buckeye yields most [illegible]

and some honey - State has blossoms - very important to bees here - Raspberry beginning to blossom - Queen sent by Mr Cary (Egyptian imported by Alden Chase) came by mail all her bees dead - smelled - she very lively - laying very well - (22nd) 50° - Fed all the stocks twice - drones in full flight - Raspberry in blossom - Buckeye blossoms yields some honey - (23rd) 40° - very gray weather - bees get more honey - did not feed to day - Swarm one frame doubtful queens - slow to get fertile - many of them lost - fine layer imported - how of new doubtful queens - (24th) 52° 74° Beautiful day - drones in full flight - Honey got in small quantities - (25th) 57° very hot - Bees have sent to no honey - but times are very favorable - I am just the right state to do big work if honey is wanted - I am now adding on my new state of bees - without any honey bound - am much pleased with the flow - bees entirely very reading - (26th) 52° 80° - Locusts in warm spots beginning to show blossoms - Tulip trees just blossoming - White clover in warm spots beginning to blossom - Important plan for getting largest yield of surplus honey where it comes with a rush - Say 50 hives in apiary - Just before the great honey harvest - if any are not strong enough with bees and brood, transfer combs full of brood from weaker to stronger - shaking the easily combs into the one ridge of the hives - Do this early even if one half of the stocks are left entirely weak - The strong ones fillers with brood hence honey flow be the right must go into them in great force as soon as honey commences - Swarm one then made before strong more honey will be secured from two or three only moderately strong - Bees affected by weather as are the colonies may be equalized by weather - Those strong stocks swarm - hive them temporarily in box - remove say one third to one half of the brood combs with all the bees to new swarm - and give old stock a fertile young queen - so that they will not build queen cells - The new swarm then will go right on early in the boxes - Hive multiplied 13 times best for such a plan - (27th) 60° 80° - Last night very powerful wind storm - 1/2" rain - it truly helped rain for the crops - In the A.M. bees got some honey - towards noon began to rain - rained considerably in the P.M. 26th, 60°, 80° - at glorious day - bees very active - Towards evening Locusts commenced - Important - Cupola was found having swarm hatching or about to cut out in super - Cupola bees transferred to new hive for swarm - bound (?) 60 pounds

Re: Impregnation of green — Dec. 27 1800 — Received to day a letter from my friend Dr Edward Bancroft of London, which relates to the artificial impregnation of Silkworm — Dec 24th 1800 — He has thought that it might be profitable to impregnate the eggs of a diseased laying green or non fertile or rotten green by injecting the fecundating matter by means of a syringe tube which is to be used in microscopic injections which are left in dissection for the bore of the female. Eggs laid immediately after might be impregnated which could be tested with Lizzy's. If this could be done it would be a great advantage. If he has time this will be done so I am inclined to think that it will be effected at least to a very great extent. If this succeeds the question of fecundation will be a fair test of it. My present idea of operating is to cut off the tip of the tail of the male moth with a pair of scissors & then with a pair of tweezers to take the tip of the tail of the female moth & with the syringe tube to inject the fecundating matter into

(3) (i) Impregnating Lumber — See results the side of this sheet —
dressing to molds — Not have been confined for three days — or better to be
needed be perfectly seasoned before the fire — Prof. in Cincinnati experiments
noted at — it seemed to have proven not decisive — then that time
or been certain — so as to have proven and discover the using Gutter
Otto Gray (see Rec. Journal Vol 1) experiments show that they have made
the have — Prof. regular course of sporing and detecting troubles or rearing and
burning certain to protect — but and then, wind down beams and
necessary to that obstruction or not to be too greatly discussed by it
that plan properly developed seems to me the most feasible of any yet suggested
A large number of nuclei might easily be kept in a double case, one or
difference at different height and fashion, nuclei layers of different colors &c. If a
plan of this kind could be made to succeed how much might be gained in

[illegible] finding [illegible] the [illegible]

[illegible]

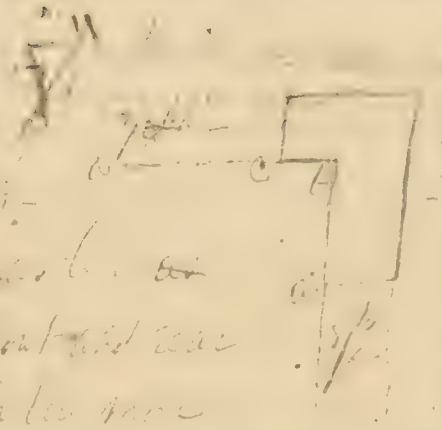
March 11th — Mr Hill — Dear

Hanging double sides of hive from the outside by fastening strips to legs of hive and side
boards and fitting in with shadow the air space then obtained — This an excellent idea
and used in connection with inside plan will be all the better — 12th — To protect
the bottom board — In preparing hives for wintering bees, place upon the bottom board
(under it on outside) strips and keep it in place in any suitable way — This prepare
this only in the very coldest climates — In very cold dry latitudes like Minnesota — the
strips might be folded up under hive as supported by legs — or the side boards fastened
[illegible] outside air space might extend to bottom of legs — Fill in with hay — set
board back of hive — and with upon a slightly bound strips under hive is well protected
Or — set board fastened to legs extend say two inches only below legs — and project be-
hind so as with another board fastened to hive order only you before this the rear
of the hive — Fill between rear and this board with shadow — In the space below
level of bottom board — pack straw which can now be easily secured in place — and
yet not close to the ground to be wet be — If double the hives can be enclosed the hay
way — a single strip being laid upon the slightly bound kept high enough by [illegible] tacks be
to allow bees to fly under whole length of entrance and yet exclude mice —
Seed an arrangement of not for the free escape of moisture alone will make a hive very dry
will lead an arrangement less of the winters well without too great exertion
— Bees winter in one early — and at each left opposite then in any [illegible]
Entire depletion — Will there be any official objection to having the strips on
sides and below all same? Easy to set side boards frame for rear board —

Instance of Hot Weather — If not due to the queen, it
would be a great pity if he
could succeed with her for he should be inclined to leave
our queen to Helvetize our affairs — He almost
succeeded in trying the legs of guests —

(March 1st 1862) Have one or three days lounging & lies —
queens in the Fells — to look for large —
stones — the birds perhaps gone on for — high up
the hills of their shrubs to hard cold hamlets — the
ye infest lean & leaving blank — they are off & on
from the hills & tell before long gone down low fear
See p. 111 114 & look sale — This is very good & bear
bodies are fortunate to come in demand!

[illegible]

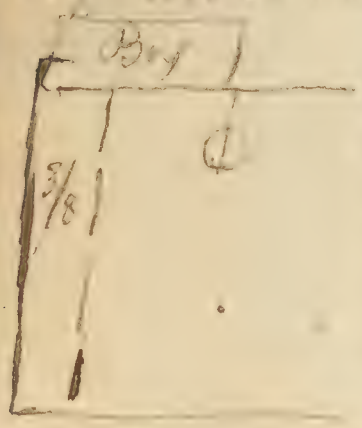


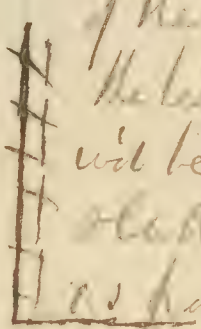
[illegible]

Shaker of Motion patented May 1st 1860 for Mr Pierson —

Order 1st — One given to Chas J. Kirkland, Cleveland, Ohio — $1/4, on April 27, 1863 [illegible] of his share given — to let in pieces 1/2 3/8"

See He — Inside — Inside piece go down to 1/2" of bottom board — Leave strong back in middle such for feet to keep up for bottom board — 2" wide — Second piece — Set in same way 3/8" from 1st — Third for 2nd — Fourth for 3rd and just wide enough to admit the [illegible] for [illegible] effect of frame — it top edge may be made [illegible] rounding off to say 1/8" to admit canopy frame. Frame may be clamped on the top — [illegible] frame cost per piece 4 1/2" the height 3/8 for part the size of frame [illegible] — get into [illegible] 3/8 below the end of top and case, so that the top being built on [illegible] for each other — they need not have letters [illegible] — but [illegible] have a very good adaption — it would be almost impossible to get the [illegible] to fit badly here — In winter see that the stop may be taken out and [illegible] — in case of cold, that the [illegible] may be [illegible] — Shaker motion might be [illegible] and see [illegible] alone to suit frame — (Case 8th) Might not the top of the frame rest upon clips to give a [illegible] being — ending the lower top under — about 3/8 the front coming — There will be danger of too much rocking — (13th) The same [illegible] arrangement might be used on the sides as well as front and rear — or on sides and not front and rear with openings in boxes to let bees in. Or use two [illegible] dividers — one at each side — made on same plan with Grid. Frame. Bees if there are made thin wide pieces to [illegible] the — and sides, the bees into the boxes — there [illegible] about 1/2" wide for sides — and middle — may be made so that the [illegible] take up the room of one frame only — Grid may be [illegible] so as to [illegible] frame. Holes may be made in [illegible] (See He) to let bees [illegible] — The [illegible] may not be [illegible] [illegible] the [illegible] — [illegible]





[illegible] Bay would Mr. Dare an admirable
chance to sink in boat — Slatter's dinoles might be carried with the current for one
20 — June 29th 1863 } Thursday — wind close — 0 lee edge at two but got to sea 1
Journal from R. 1 } [illegible] — Dark foggy night — At daylight [illegible]
[illegible] — and [illegible] leaves the coast for —
crowded — [illegible] yesterday — We [illegible] — [illegible]
[illegible] — At [illegible] — [illegible]
[illegible] — [illegible] — [illegible]
[illegible] — [illegible] — [illegible]
[illegible] —

of white clover — has to clip the grass and dust to see level left — Found a green
wife & young grandchild lately before — stay a week — Had Shot the last
a drake — (July 1st) 90° — very hot — an unbearable 8 months — Before dark the
Lizzie upon the Lawn — Lights — just come in with Mama — & Pa — Had a black cream — after
the whole show began to come down — been down before it — Very green behind the strings
(2nd) 74° — Rain just beginning in the town — speed the storm — Then hot and sy
and cloudy until said flat second cut of red clover was in good — Then hot
finally broke — very spitting finally to 1st — Found Mr. O.L.C. on Bar — Cir. to
Stop — Long talk with the Mr. Hodges — Then dark — Left on home Hot
and cool — not really very bad — [illegible] — Then a large swarm from our
Hive in the 2nd story — Not mine Hive 15th in 2nd story — Had much trouble & noticed
large amount of pollen in queen cells — one was uncapped but bottled up for many days in
inch of jelly — Rather think that a molasses plant with my bees was in bloom
Hive 7th Dec. — 3 strong stands not that the bees — Lizzie was [illegible] my face this
afternoon — been quite hot this morning — (3rd) 70°. 86° — Very hot — clover
heavy thunder and rain with strong wind at 5 P.M. — Very heavy after the
Lizzie wider — very big cable fly — more much done on clover then for some time
Had a large swarm — made one — Had a number of very beautiful queens
July 4th — very hot — [illegible] good queen [illegible] out — [illegible]
to be a good [illegible] — bid good bye to it — Fair honey day — from that swarm
had great supply of those bees — very little honey — (5th) 70° — 80° — Bees working
[illegible] — [illegible] — [illegible] — (6th) 70° — [illegible]
[illegible] — [illegible] — [illegible] — [illegible] — [illegible]

[illegible] — [illegible] — [illegible] — [

Journal continued from '26 — May 31st 1861 —

J A well of Locusts in blossom a and to day the last of the season for honey — two or three more short days and the old black bees will fly from two experiments below that one stock clipped of fly green — Now comes a new lot — seem more inclined of late than J. Dow — I did no difficulty in giving J. D. 2s to market in the sealed queens — Made a stock by giving 3/4 lbs J. D. empty comb — and brood and bees — Put the bees back up the green house — the bees seem discouraged up there and returned — I found a very weak J. D. in a fine queen cell — a very healthful one in the big red cell — Made by cut have closed — (June 1st) Went to Prof. H. for a day — Very hot — feeble air, but not made a diligent fighting cell Dr Smith — (2nd) Settled — very hot — showers — (3rd) very hot — showers — made a search for Mr Hartle — Chase one for Mr Clay — Went to Orford — John engaged at the house of Mr Lyons — more seeing bees before — My neighbor Mr. Cook finds his old Cook a — bees seized the stocks are very heavy — Sought bees in the afternoon — to Sidney Dow bees on "Coffee Tree" old Mr Lyons — Took out the first comb from stocks and found only one small cell — Made a search for the queen — Found the old queen in one and have the young "Clear" — Made a search for the queen in the first apartment being sealed and of — bees are kept still and get more honey — bees buffeted in search (7) very hot — bees at Dr Hills swarmed — left them get about 1/2 in hive — Took home — a number of times — at last on a tree — 220 — Some others left for old hive — Made bees fly towards

[illegible] left two by [illegible] — [illegible] to sit it — [illegible] [illegible] [illegible]

Jewish Hierarchy. sketch of. (Spir. Deifolum. P 71.) good.

a third story, but some of the earlier first second story in the [illegible]
[illegible] — [illegible] — [illegible] — [illegible] — [illegible]
[illegible] — [illegible] — [illegible] — [illegible] — [illegible]
[illegible] — [illegible] — [illegible] — [illegible] — [illegible]
(16th) [illegible] — [illegible] — [illegible] — [illegible]
(17th) [illegible] — [illegible] — [illegible] — [illegible] — [illegible]
[

Jelly-royal found (June 17th 1882) a considerable quantity in letter of a cell containing an unfitted Queen - looked like Dark jelly-light -

Queen unknown since - Prof. Cook has received 5th box - from J. Di - 4th the first one 1st - Wed bee for market and gave to neighbors - On 21st made two more swarms for Mr Cap - London Queen, left cell last Sept. and - 23rd Old fed sun hemmed in A. Hay clouds. In P.M. Cleaning hives till great hog day - 24th Hive 4 put labels J. Di - all were colored - and one as much to do I can agree - Dandy - bees in fallow have done very well - Have a great success - (25th) at nice shower - made some Squash - some J. Di labeled - two not quite colored - Great day for hog - 26th Two nuclei with Q. J. Di queen - found Queen had fed them in boxes with some burnt comb - Think my nuclei too small - bees discouraged - Heard bees with Taylor stock quieting down - two swarms weighed - very scattered - very industrious - must have a pretty honey - Was the Queen killed after she began to lay? or have there been cells carefully removed? In the evening clouds that appeared rain - very clear in P.M. and very cooler - 27th Fair and cool A.M. - 50° - Sent an J. D. by Henry to Mr Ives fell and weighed - In the nuclei with J. D. colored - lost - can find that queen seem to be out and dazed - At my hives found swarm left - might have caught it - Had J. in A.M. bottom cut for fear the queen would fly - Bees hung high in air - in a few minutes the bottom hive cycle became and climed up to the side of hive (see sketch) - Found Dage to go in hive to wait there - Night the bees in - but not sure - the most have been in and gone back - the first flight started up I. Dreams when gone in the hive - Night to have clipped her wings - this the family of experience - Sealed cell in nuclei had the bee queen left no queen guilty in the hive - Bees very fond of the stripe - I think I have come to the end of a whole chapter - (28th) - At little rain before day - Good shower in A.M. - Not enough for potatoes - 29th - At bee hive at College swarmed out - when they came to go off well tanged - Sent Dal. J. Cook by going to meet the bees - Day to let Prince - another nuclei with

Hot P. M. found out — lid high — and one lowered down limit — bee passed off — queen was crowded to fly down and go in — queen cells with eggs — Thus the colonies will have to swarm — when put together they fill in the flies they do not leave again — one of royal cells from Dayton Copy G. had to swarm dead larva and very great amount of royal jelly — Black cell. Thus queen cells had chances — Hence done happy in hiding better queen given to them — The College Bees not mine Thus half a swarm to me — my number from Dalias received by me one my bees — Have little dark Italians — but some of the queens are not so well colored — of Dadant in clay stores in free upper — one in big hive hole big in flatten extended — Bees are lively — (30th) Had beautiful showers in the A.M. — July 1st — Some showers — cool — less cooling off today — Swarm at Lodge in sun tree and hived when the rain had cut off Saturday — Hot quite speedy have at least cut off — Day not Hot — look for queen — the queen of hive I. L. Cage queen 6 days — cage full of eggs — yellow pard yellow green — well colored, but had wrinkled wings — has a tail like a drone (Hot) — [illegible] — July 2nd — Bees upon well in Linden — Saw D. with bad wings — confined bees in a box — colony has been shaded by adding bees from a colony hive from a glass at first queen with colony left some day 120 in front — bees wing hit so that she cannot fly — At evening 7 P.M. bees seem very active confined — queen not yet laid — Had (3) 45° — Bees work well — Colony that had swarm — clipped again — queen has laid a few eggs — reduced — on the clipped last — Cut off 3 queens — found queen in hive having been injured on ground near hive — a few bees at the hive — Hive seems to clipped and is future — Have made nucleus to swarm — (4th) 50° — Saw the queen in wedding flight — Thus in bee house — Saw D. L. queen cage — bees [illegible] — found cages that had been in cage many hours — queen of the swarm removed about 12 hours — [illegible] — put her in cage again — Honey for the bees taste — Removed pollen from two hives — comb very [illegible] — has not started comb building or breeding — may be left in till [illegible] — Found a queen in hive comb — put in [illegible] — July 5th Hot — This P. M. — found hive to wh. D. A. bees queen [illegible] — Queen left — Only drone comb and queen cells — Another queen in cage 24 hrs refused — put her back — Many drone [illegible] left way to give queen cells almost mature — Give the same

to be honest is difficult to get [illegible] fine [illegible] for other [illegible]
[illegible] that two queen cells — but the queen cells of second [illegible]
[illegible] — and set the other [illegible] — can get down a few [illegible]
a queen may queen to be cut before hatching — that is my [illegible]
[illegible] — I have not [illegible] out again on the [illegible] queen
[illegible] — in the colony — (6th) Hot and dry — Shut out bees from [illegible] one
[illegible] — when searching for queen found them on [illegible] — received bees
[illegible] — some were not [illegible] — [illegible] bees [illegible] of queen day
before — for after hatching bees [illegible] found [illegible] before
[illegible] — [illegible] in all the bees all right — [illegible]
[illegible] — [illegible] queen — bees [illegible] — [illegible] dishes
on [illegible] queen cells — [illegible] found
a [illegible] — [illegible] — (7th) [illegible] — bees [illegible] very well — [illegible] queen cells
very abundant — bees [illegible] it — (8th) Hot — [illegible] 72° [illegible] — [illegible]
[illegible] — [illegible] — [illegible] — [illegible] — [illegible] — [illegible]
[illegible] — [illegible] — [illegible] — [illegible] — [illegible] — [illegible]
great importance — (9th) [illegible] rain last night — [illegible]
[illegible] — [illegible] — [illegible] — [illegible] — [illegible]

If hen 1 or cells fed to certain age — 46 hens one cock — 50 = 2 ? 98 = 3 ? 19 = 4
2 = 5 ? 3 = 6 ? 4 = 7 are 3 hens 8 eggs each! Have given the only cells in
[illegible] — [illegible] — [illegible] — [illegible] — [illegible]
Joy in heaven over the repenting sinner Phil. Man. Poly in Spirit. P. 38..41
[illegible] — a [illegible] — [illegible] — [illegible] — [illegible]
[illegible] —

[illegible] O [illegible] J

[illegible] hauling some at drones — Am anxious now to get all the chance I can raised in nucleus with J. 2 20 — (20th) White Clover stem very abundant but bees do not seem to work on it — This A.M. noticed light brood in nucleus from which Q. 2 was taken 12 days ago — and to which I have given (unless a queen) sealed cell which he has destroyed — Found 20 perfect queen cells! Can be sealed and which may be taken hence — and in a warm room where they may perfectly mature & be distributed as the cage and my karma holds — They were all on the bottom edge of the comb — some very long — Bees exceedingly crusty — smoked & not drummed — Shook down, and left hive empty for — found two queens — one small and not highly colored — other fair — Gave the queen to nucleus & the queen cells — two of them to hives from which a third queen had been taken — without much intuition to the result — In the P.M. the nucleus to which J. 2 from Sept. 5 had been given drumed — [illegible] — left hive two minutes to see how big the cells were & find the big hook — gone when I returned! Could not find the queen. Did Boyd — [illegible] — Awakes from fable makes hive to which J. 2 the queen had been given — and yet more eggs in an entire drone comb — and the little big drone eggs & stages a queen from worker eggs — while they directly with eggs of fable makes —! Found queen in hand of one of the nuclei — may be unclipped — in a small piece found a dozen or more in a fine stock saw white film — cut out small brood — in the comb which had egg hatched — in which had been — or comb was cut — Took away [illegible] — when wing had been hurt and which had left — quieted again — [illegible] — Bees much disappointed — no eggs — which holds her in my hand and [illegible] — [illegible] — [illegible] — [illegible] — [illegible] — The latter was in a small nucleus — but they had with her sealed queen — which she about hatch — (2) By the late P.M. — [illegible]

yesterday less flying — lighted under it and around it — [illegible] — [illegible] — [illegible] not spread out in natural position — The colony have begun a number of queen cells

(22) J U

[illegible] — [illegible] — [illegible] — [

[illegible] — [illegible] — [illegible] — [

hive — Took honey — gave back left dividing partition and let in second. [illegible] [illegible] — [illegible] [illegible] — [illegible] honey and apples — [illegible] [illegible] and [illegible] in a [illegible] — [illegible] [illegible] [illegible] — [illegible] [illegible] — [illegible] [illegible] [illegible]

Brood & stock were off for bees — the stock hives were gone — no brood — stock no queen — gave them comb with sealed brood and eggs from the 2 colonies queens — these raise a few queens a from blacks — K
see if after they have been queenless — These have queens reared from Dzierzon stock — probably taken from for queens — one of the queens has been with them or dead or has been from my cellars — I raised one fair queen from the other — must let the farther bees go if it will hold — Have kept most of the honey heads off — Cloudy but on the bees seem to take — but if we have had no rain — bees to get 10°. Dec. 46° — Jan° 35° — In Dec. had two weeks of almost Indian summer — could work at night — beautiful sun — bees gathering — down to zero with snow! Heard that the weather in the middle of January — but fear no hard — left of Dec. — there no effort to hatch them — One Ital. stock w. had the eggs alone last December fitted with capsules — (the last one set removed on 6 Oct. and Carniolan queen taken out) — had lost three in the winter — bees in cell with the honey have gotten bees between the rings of comb — Has not set the extra honey in supers to 26 oz. Drone comb appears in this hive very early — (6th) 45°. 50 — Rain last night — cloudy today — Girls have gathered some sweets — for strength bees tapped off — Colonies queen stole from the other side of the dividing board! Did I let her go by or was the queen because of overplus or perhaps lady bees dispersing — These contain her colony & sold for the stock — The foundation blown queen the Carniolan — Other of the one queen not so good as some raised by me last August — time to be very good queen yet — (7th) 30°. 38° cloudy and rain — calm — ~~(8th) 30°~~ ~~Cloudy and calm~~ (8th) 30°. 38° — Cloudy — calm — (9th) 12°. 30° cloudy and calm — (10th) 12°. 34 — A.M. clear — P.M. cloudy very rain — ~~(11th) 30°~~ Examined the very fine stock — queen the one queen in 1880 — Bees for Sales the 2 & 3 — very busy black bees — (11th) 30° 34° — Spring very windy — Two very fine stocks here queen to produce stock from the — to get bees from the — & queens of the hive have two they black bees — (12th) 34°. — Spring like — drove all gone — bees active — [illegible] Hives w. [illegible] 2 — has a number of queen cells — a few and [illegible] — Carniolan queen stole from the other side of the dividing board — Did I let her go by or was the queen because of overplus or perhaps lady bees dispersing — These contain her colony & sold for the stock — The foundation blown queen the Carniolan — Other of the one queen not so good as some raised by me last August — time to be very good queen yet — Hard a few days — Heard 3 days ago

(13th) 25°.40 - Cloudy - Rain - Gave candy to a number of kids - one Queen gone with K[illegible] - very good land - Saw 2 bees at dusk - this has helped the appetites. Left station - queen not set off and many of the bees - Had raised here - the stalk has one about foot of the beard - only the bees increase their hard honey goes off very fast - three feed with candy mix - Rye flour worth [illegible] [illegible] offal - I have 95 stocks - 18 sick D.L.H. all of these crafts from a few bees given of last year - (14th) 8°.16° = Coldest day this Winter - 4 inches of snow fell last night - very clear and fine - (15th) - 4°.20 - Clear - still heard about a week ago of much floating ice in vicinity of Newfoundland - (16th) - 2°.35° - Variable - Rosy Dawn - Hot - (17th) 31°.46° - This AM found ice in Gulf (dark) hard which had to be forced out by oars! Cloudy and a little rain - Sun without queen has now hatched yet - Saw the taking up Port Dominion receipts this P.M. - (18th) 29°.30 - Clear off in the night - Clear - calm - High rising ground had two cells from which queens had emerged - Found one - small - well colored - thought the mother to have been newly impregnated - (The mother was reared from Italian [illegible] - [illegible] that has more goldness [illegible] dark grey) - These cells get undisturbed - This queen hatched in cells 13 days after feeding - Saw Minnesota cattle line off - and [illegible] - and some of the coldest weather of the winter - The queen of Dave this AM - must have hatched last night - in a few hours one 12 days from the time queen was lost - (19th) 28°.32° Sleet or rain fogy as it fell - Still 28° - Clear - Trees very heavily coated with ice and the inches of snow since dark - If seen cold great danger to the fruit buds - Plan of operations that I can get themselves for operations for the coming [illegible] (1) Present for some of my old boy friends to help me to make my 80 stocks in my C Hives - 2) to Hives by jointer feeding and helping weak stocks to get e in the cellars in good order. (3) Form my nucleii for raising Italian queens in April as early as the weather and fertilization of drones will permit - aiming to have the new queens hatched a little before the drones to avoid no time - (4th) Sulphur at once dark pit or common queen to have no common drones (N.B. The unlikelihood of common queen stock to be produced from remaining drones -) (5th) Each stock when able to gather dandelion stores to have hive with frames on the top - and frames with foundation being lifted up 23" and no more as nested frames [illegible]

placed on honey-board of top hive (6th) Three Queens if they wish to swarm — in about a week all queen cells before removed — or all removed and queen given — 7th When honey house nearly over — say about first week in July — if the hives are heavy and populous from crop from that hive not swarmed make one taking two combs from each — (N.B. Swarm might be Beginning) In removing supplies leave some honey upon hives to have honey in case any be too light in the fall — (N.B. Some artificial colouring must not be made so as to prevent upper hives being filled — as it is only all inferior supplies)

I suppose 4 out to swarm — for the other 18 make 4 = 28

" 6 " " ..... 14 " 3 = 20

" 7 " " ..... 13 " 3 = 30 —

In removing honey for selling, take the end combs which are fullest up to the end — also in preparing the hives combs for the hives need to extend up — keep the bottom of hives filled — Use fresh queens from the nucleus for the swarm hives — and let the hives swarm to grow big for fall or to increase the box of strong supplies may be worked — if two or three weak enough for to carry to be — but if this last is not done it will when these swarms are made not be little to suffer from the long hot weather not have finished — It will be advisable at the close of the season to see if any hives have fermented or exhausted the honey which can be secured on the spot for 50 to 100 lb stock — (21st 25° 39' — Very hot and cloudy with rain at intervals — Miller and the boy much better (22) 26. 42° Cloudy with sun trying to break through — See mullet off Tree Point but hard to get — Two stocks in N.C. Hive found dead no candy given and they got out of feed — Carted two in one (immediately after) about 55 lbs — The other had candy but cold weather caused bees and he died — It was not safe to feed to candy when no liquid supplies — Eternal vigilance the price of bees!! (22) 26. 42° — Cloudy — Foggy — Sun See mullet off Point to day — very abundant — Good Alminiac (23) 43. 59. Very hot — very — Hot and fine — Bees doing well — Thermometer to see — Here the last Italian queen had a young queen of mixed Italian — very dark — not quite black — Queen hatched

K

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[illegible] 58° – Apr. 10 – [illegible] – wind [illegible] – (24th) 22°..30° – [illegible] cold tonight thermometer [illegible] – these hives are my stock of Apr. 6th and I propose now to make comb fixes – using any small pieces of comb for making combs for queen – such as these black queens must be arranged with their 3/16th openings – then queen being put in and as soon as possible – By keeping a vigilant eye upon them combs be very few otherwise be produced in them – (25th) 22°..38° – Clouded early in the morn – very raw wind – (26th) 38°..54° – Clear at 2 P.M. bees flying briskly – Bending out of their hives [illegible] combs upon pick of the early year's [illegible] – (27th) 25°..38° – Some lightning last night – wind veered to N.W. – [illegible] and very raw wind – (28th) 23..36° – Rain early A.M. – 8 A.M. very clear – bees fly a little – Bought home my bees from [illegible] – (Mar. 1st) 22°..34° – Cloudy – raw E. wind – at 9 A.M. began to snow – (2nd) 31°..38° – Mild clear E. heavy rain last night – coating the bees with ice – some have down – strong wind in the night with severe thunder and lightning! Thermometer will record very favorable range during the day – (3) 32°..21° – Rain last night – bees not so much crated – very windy with snow flurries – A real winter day – (4th) 24°..35° – Cloudy – milder towards sunset – (5th) 23°..30° – Cloudy – snow flurries – (6) 21°..32° – Variable – very raw – (7th) 25°..41° – Variable – at 2 P.M. – a few bees in the wing – shaken again J. & I. – no appearance of any eggs – unsealed brood given to them some time ago sealed – (8th) 20°..46° – Mild S.E. – by 2 P.M. – bees began to fly – accel. last greatly of my first hived colony – strong in stock hight from 6 to 8 – had cleared stone – [illegible] this point – Hived very popular bees – had good brood in four combs – these had no honey board – high honey board – large entrance – Gets them multiplied [illegible] – Cut as they took up at the bottom – not one bee – (9th) 22°..46° – Variable – bees spread [illegible] – bees speedily greedy for [illegible] – [illegible] – (10th) 47° – Rain during the night – Bees given to clay in the [illegible] – all sealed – no eggs – [illegible] – 34° at 9 P.M. – (11th) 51° – 49°. (12th) 36° – 55° (13th) 41° – 61°. (14th) 51° – 56°. (15th) 40° – 42°. (16th) 34° – 37°. (17th) 34° – 44° (18th) 31° – 55°. (19th) 37° – 46°. (20th) 46° – 47°. (21st) 38° – 41°. (22) 35° – 41°. (23d) 36° – 36° (24th) 40° – 30°. (25th) 29° – 47°. (26th) 37° – 41°. (27th) 30° – 48°. (28th) 34° – 35. (29th) 46° (30th) 46° – 70°. (31st) 38° – (Ap. 1st) 36° – 48°. (2d) 47° – 49°. (3d) 48° – 63°

March 19th In Cleveland to Elkton. Bee-house — [illegible] saw, turning use his compliments — Blew up an Elkton block — Took away queen — [illegible] queen [illegible] left [illegible] queen to Elkton [illegible] (22) Mr. Dr. J. P. Hollard expected to [illegible] Elkton today — Only by inspecting the Weed, May [illegible] — (23) Mr. Dr. Hollard [illegible] 46°, 70° [illegible] some honey — (24) Examined Elkton with Dr. Jackson confirmed the queen — queen easily found — Sage bee Elkton seen bees had drone eggs yesterday — Took the queen and put in cage to go Elkton given to me by Dr. Hollard — Took the Drone Queen of the Elkton [illegible] queen to be have seen bees in in cage — May 26th queen Elkton — [illegible] — took her away — 46°, 70° — windy — Elkton [illegible] last night — (25th) 32°, 56° — Elkton [illegible] last night — [illegible] — [illegible] — [illegible]

one a select queen for fullblood stock — I think I may make a selection out of the select
queen for fullblood stock — I forgot to mention it in my cap — we all captured — We picked up
with K. [illegible] — Bees have been very active to day — Bees have been here a few
of late — more than any for other — Some have robbed — feed bees brought home —
(17) 60.76 Thermometer was left night — Bees in Buckeye hive feeding the four queen cells
for few days — the cells of being allowed to mature and not having been taken to make
two nuclei as I intended — Oct. Rain — Peach and Lizzie Apple bee in
full bloom — Apple blossom very full this morning — Opened one of the queen
cells — been opened alive — I did not think it had been hatched — give the cells to
bees — 45 stocks in my yard, averaged for blackbird — bees had been shut in
a week — cause weather has been stormy — There is also so much pollen
that I think they will have enough — some of the bees opened
and got all opened right — (15) 57.. 66 — Very flow in stocks to day — I think the
queens — more than queens — drone brood in the hives — The bees
in Mr. [illegible] are too small to be strong — stocks only [illegible] bees —
(19th) 42.. 56 — Honey-bees able to get some hay out to feed — Cleared out
[illegible] stock — taken off a table in my yard to-day — some very
[illegible] very yellow with old, faded ch, mostly, some cold — the
[illegible] for old stock — 20th 40° 49° — Third heavy in the night
Eggs [illegible] — during the day very strong wind and heavy rain — If you
from [illegible] to Lakeland this A.M. — my bees left and large — Rather from
their hives and entering very generally into the hives — gave the young
queen back to the fullblood stock which had no queen cells left —
I think they have swarmed (21) 44 .. 54° Heavy rain during the night
wind has shifted to S.W. — Bees fly in day the day — Some more
fullblood queen have hatched to-day — one in the family which the
other queen was for which I put in a fullblood queen. The queen
has been checked the night (18th) and opened 18th a queen flew
alive — before they left from queen which we think some hardly — Feed
sugar and some crushed Wet Philanquers squeezed Wed [illegible]
[illegible] — (22) 37.. 58° — Heavy rain last night — This A.M.
[illegible] from the East to S.W. — At 12 M. — Sun appears — bees out and
[illegible] blossoms of peach trees say from [illegible] & Apple blossoms of the
[illegible] & bees — very active [illegible] before received — of and was
[illegible] easily made the right — I found fullblood queen of yesterday choice
on the bottom board — [illegible] queen [illegible] Office [illegible]
[illegible] D.C. and [illegible] to [illegible] that I had taken the queen
and gave her to the fullblood stock for queen which had a queen [illegible] This

[illegible] queen dark colored but very extra bit pre-small — Another one left small hungry —
(23) 40.54° — Queen gone yesterday received — more [illegible] brood to be
[illegible] for forming nucleus — Queen early — before noon [illegible] O — no eggs — K
for a while queen — both very active [illegible] — [illegible] to cut out the honey — Attempted [illegible] of the brooding of Italian bees to queen at the
hives — Took upper of one of the hives [illegible] to see if queen
[illegible] — (24) 33°.42° = Night last night E — between 2 and 3 inches of snow on ground
in morn — mostly melted by day — [illegible] — fed bees with honey — [illegible]
up good [illegible] — Found a queen [illegible] — [illegible] of queen — Queen [illegible] — (25) 31°.55° — Cleared off in night — ground hard
and frozen — frost [illegible] do not affect hot — beautiful day for bees though
rather cool — Cleared out accumulated from [illegible] — [illegible] — [illegible]
fed bees good corks — One hive w queen cell with [illegible] in it — found queen [illegible]
or [illegible] found with a circle of bees around her! The [illegible] queen
queen cells [illegible] queen [illegible] at the [illegible] [illegible] — [illegible]
bees crowding — Charged position of bees [illegible] — [illegible] to get on the [illegible]
up hive with a few [illegible] [illegible] — [illegible] — The [illegible] [illegible]
[illegible] queen [illegible] by [illegible] — [illegible] — [illegible]
[illegible] — [illegible] — [illegible] — [illegible] — [illegible] — (26) 34°.65°
Heavy white frost — on ground [illegible] to frost [illegible] — Frost upon [illegible] perfectly
clear — [illegible] — [illegible] queen found on [illegible] — [illegible]
in [illegible] — [illegible] — [illegible] — [illegible] — [illegible]
[illegible] — [illegible] — [illegible] — [illegible] — [illegible]
[illegible] — [illegible] — [illegible] — [illegible] — [illegible]
[illegible] — [illegible] — [illegible] — [illegible] — [illegible]
[illegible] — (27) 46°.74° — Beautiful day — bees [illegible] — [illegible]
[illegible] — [illegible] — [illegible] — [illegible] — [illegible]
One hive [illegible] queen — [illegible] — [illegible] — [illegible]
[illegible] — [illegible] — [illegible] — [illegible] — [illegible]
[illegible] — (28) 51°.67° — [illegible] queen [illegible]
[illegible] queen — [illegible] — [illegible] — [illegible] — [illegible]
[illegible] — [illegible] — [illegible] — [illegible] — [illegible]
from the Rose queen — but shall prefer to rely on the Peonia queen —

Before 11 A.M. [illegible] — [illegible] for
any queen — Took my the combs they had on which they were rearing
queen yesterday & the in hive another with bottle queen — (Queen escaped
out of the cage & pillage yesterday & [illegible] & [illegible]
this morn. Queen then to go [illegible] queen rearing — (29) 38°.60 —
Slight frost last night — cold wind in N.E. — dry — sky fair — Moved
a large glass plate to catch up leaves for a week past with yellow leaves
underneath — Caught through leaves — queens cage left at door — Opened a stock
throughout in queen cage, and from queen had fed & there & [illegible]
the cells put here since for a long time past stopped — Wind confined in a
hive — then on [illegible] — released their queen — bees confined there at first only
a little — When I opened them later some more — but not enough to expect any
feed — opening made in 2 or 3 minutes — Then the queen was taken out
and put in one of the [illegible] of the bees in cage and released. My bees
not affected upon their bees for feeding [illegible] — [illegible]
for — for the [illegible] stock [illegible] queen had been [illegible]
from [illegible] bees [illegible] queen [illegible] — [illegible]
[illegible] for the stock [illegible] — [illegible]
(30) 40°.0 — Wind East — A.M. Cool — very pleasant P.M. — bees working [illegible]
since [illegible] yesterday had my queen cells started to day here only fifty
[illegible] — [illegible] — [illegible] — [illegible] — [illegible]
[illegible] — [illegible] — [illegible] — [illegible] — [illegible]
[illegible] — [illegible] — [illegible] — [illegible] — [illegible]
[illegible] — [illegible] — [illegible] — [illegible] — [illegible]
[illegible] — [illegible] — [illegible] — [illegible] — [illegible]
[illegible] — [illegible] — [illegible] — [illegible] — [illegible]
(May 1st) 40°.58 — Wind S.W. — very pleasant day for bees — [illegible]
[illegible] — Changed rapidly to cold — 54° at sunset — Peach blossoms
238 [illegible] — [illegible] — [illegible] — [illegible] — [illegible]
[illegible] — [illegible] — [illegible] — [illegible] — [illegible]

(2) 3°.47': Hemp white first part of hive — [illegible] — Bees [illegible] 5 o'clock — Found old Cage nucleus [illegible] eggs from the queen finishing last day — found [illegible] queens — gave them one frame for finishing the last & brood [illegible] of any that he has — Gave the food to five nuclei and put to the one sent — Shall not after this make nuclei eggs if young brood — Gave cut out a square from Cage c'd of [illegible] — and then cut it into two triangles — [illegible] — bees [illegible] and fill with eggs — All the eggs of the Cage nucleus have hatched & the bees about the last eggs — but they comb have too old to be used as queens I think wish — Gave queen from Glass hive queen in a cage [illegible] — the last day to one bee in Cage — which has given the food hers — (3) 41°.65' Bees [illegible] day — bees [illegible] — Cut out cells of eggs [illegible] — I had gone to remove the out of nuclei — [illegible] in the front hive [illegible] — [illegible] — [illegible] —

Sawyers, Reason assigned why in their plead, they show more common sense
than ministers in their preach (Wittington view Redacalism P.83.. 5)

have hatched — two were queens — do not like plan of giving the cells to that [illegible]
Inclinations are to a stock that had a dead queen cell. Queens have been received — both alive
one in pure queen — and gave the other in cage — Found two more nuclei
[illegible] — Have on the blown brood in 3 nuclei and have cut
[illegible] each on G. H. eggs — have 10 queen cells from the best
stock from it soon as eggs are replaced in new comb but more nuclei
[illegible] G. H. 2 eggs — Found two queen cells one sealed one not in
nucleus — had destroyed before and kept no eggs left — gave a young queen
to nucleus to finish cells to strong nuclei — Thinks impolitic as to make
stock strong — Must do [illegible] nuclei — Comb [illegible] of bee-
hives (7) 40°, 59 slight frost [illegible] — found queen in cage dead —
[illegible] — found a strong upon her! Thinks not safe on unfertile queen so
long as they have means of raising queens — especially one taken from their brood —
Have the [illegible] queen left in hive that has 3 q. cells hatched — good as sold! out
of these beautiful queens — nuclei made yesterday are making queen cells
[illegible] more queens in the combined — very slightly hurried in [illegible]
few days hopping [illegible] to make black bees stock — [illegible]
many black ones will be coming from very strong old queen — Saw a few
[illegible] queen — handsome — bees working powerfully — [illegible]
[illegible] — tacks out the end comb from [illegible] — put
in upper hive — put empty comb in place — [illegible] two frames of brood from
[illegible] — also [illegible] — [illegible] as the
bees have only cut the edges of their work [illegible] [illegible]
[illegible]! Apple trees are yielding immense supplies [illegible]
[illegible] — delayed giving [illegible] stock [illegible] a few days for [illegible] — Hope if he
[illegible] is going to get a hive of bees [illegible] [illegible]
[illegible] stock — Three put on above inclosed — when I want Rice drones
to impregnate theirs shut up Pullins and vice [illegible] — [illegible]
[illegible] — bees work [illegible] but not [illegible] to [illegible] [illegible]
[illegible] in [illegible] — [illegible] [illegible] [illegible] [illegible]

[illegible] — [illegible] — [illegible] — [

at upper edge in flowing - called "Day" or "Sun" to day for in the cell -

(13) L - 68°. 76° - Light flower with black leaves - Day Lady said to day - with some pointing leaves - leaves yellow in color - in the cell they stay - little lower as longer shoot - In evening they stop first cell and hang - cut for hour to prevent crowded upon - A month of blue Day Lilies bloomed - in other one cell - Kept a month of nectar with two opening green cells in the hour but night one opened flow from time to time - only one blooms - remarkable - Fire bee in hour made dark cell with a little smoke at night - only a bee accidentally bee the comb - had flow open for cure of experiment - Take out only one comb from the nectar - to keep it to hive - Butterfly queen drawn fly - to bee to day - Sent queen drawn first hatched on the 11th and flew on the 16th - Day bee fully hatched to day of the nectar - Marks this queen for day to fly in called queen - Open to find day drone that was hatched - Other queen bee flying from the queen cell on the time - say days from the time that drawn queen in the most favorable circumstances to fly after they are hatched - There is flight but small signals perfect and no [illegible] prepared for their office - Thermometer at 8 P.M. with blower rain - the top of the ground very dry and hot - "The rules of life will there" Rose at 8 P.M. a Yellow Rose - beautiful color - big (called yellow) growing at the side of a [illegible] - has spent a [illegible] - perhaps in a [illegible] - in left hand on the [illegible] - the [illegible] of the spring! Day Lily has one green flower the most beautiful green I have ever had - that for not one year - but the first time we saw it - the day one of the Dark Green - The day to [illegible] the [illegible] is to have more power of holding hand to give the [illegible] - [illegible] - [illegible] -

Saw no Icebergs!! Hey nice very hazy on the flows — Saw a school of Pilot whales
for the first time this morning — they are just up by Cape — Saw some bottle nose
from my Window yesterday for the first time — L

(16) Wed. Left Cape Race to fly — Left off flying the green flag
when they dared come up for the early — Had a little green
from Rutland green — Very hot fair for calm — Had a bad G. H. green
patch — Weather not so fair — We fired the gun yesterday — Some stock
so they could be fired to show how the signal work — as they were
[illegible] — Clouds less low during day time — (16) 52. 76° Fahr
cool — very fine day — Played some tunes for the Ch. C. U. to be new [illegible] —
a fine [illegible] — If the sea [illegible] — [illegible] — [illegible]
Cape [illegible] — [illegible] — [illegible] — [illegible] — [illegible]
[illegible] — [illegible] — [illegible] — [illegible] — [illegible]
Ch. C. U. — [illegible] — [illegible] — [illegible] — [illegible]
[illegible] — [illegible] — [illegible] — [illegible] — [illegible]
and [illegible] the Sick for days — [illegible] — [illegible]
Sick — very [illegible] days — [illegible] — [illegible]
out — [illegible] — [illegible] — [illegible] — [illegible]
G. H. [illegible] — [illegible] — [illegible] — [illegible]
[illegible] —

Light. I have just found out May 25th 1851 that bees can be made to work just as well with a full exposure to light as in the dark & I have removed the ~~doors~~ shutters from my double observatory and find that in a short time they do not mind the light.

I ~~have~~ had two observing hives in full open during summer of 1851 the bees were exposed to full light of day – They worked with great diligence in main hive and in humblies and did not appear to be at all molested by extraordinary amount of light to wh. they were exposed – All operations of hive were constantly exposed to full view – Queen exhibited not least shyness – but might be seen at almost all hours of day laying her eggs surrounded by her ~~attentive~~ children –

1852

June 9th – Numerous experiments show me that great care must be taken in putting a swarm into an observing hive – and exposing them to full light – in many instances they have abandoned the hive – even when their Queen was virgin – Queens reared in full light do not seem to mind it at all –

Oxford 11th 1866 Mr. Langstroth Dr Kenrick and other friends urged me to place of 1/2 inch of this [illegible] to form an [illegible] which might be [illegible] in Reading room – [illegible] care needed not to have these fillings get wet –

Linden - or Bass - The European tree unlike for honey - infested with insects and not near so beautiful as our American - which yields abundant supplies of a nice honey - It ought to be extensively cultivated as a shade tree - and ornamental -

Lighting of Bees - Caught swarm of bees when bees swarming - in two instances - the bees had not left anywhere - put them in box of a bee engine - In each instance in a few moments the whole swarm came to them or clustered around the box -

Lib. 1 Italian queen - Langstroth -

Athens Aug 14th 1865 - Mr Wm Grimm of Jefferson, Jefferson County Wis. writes (one speaks of the Bee-keeping) - furnishes the following facts as to length of life of Italian queen bees - August 1st 1864 introduced "probably mismated Italian young queen to a good stock of black bees just deprived of its queen - In January 1865 - examined the stock - found capped dark brood (black backed) in worker comb - reared little drones up to the 20th of April having then brood in three combs - It was then transferred from the old box to a stand here and a second Italian queen given to them from another stock - The queen hatched so as to leave fertile May 6th = At this time there were no black bees left in the stock - but only the hybrid workers which the ~~young~~ queen mismated queen had produced before she became drone layer - The stock was strong enough to have brood in four combs from this second queen - the brood in the two outside combs being about the size of the hand - length of stick about 18 inches - depth ten inches - This stock received so rapidly that it began a fair swarm by the 11th of July and after swarming filled its hive - (Aug 15th 1864) ~~At same time of August 1st 1864~~ He introduced to another good black stock just deprived of its queen an Italian queen - which in Spring (March) was drone layer - a drone layer - queen having produced workers - this colony had ~~an~~ new Italian queen given to it the same day with the one first mentioned - which hatched and was impregnated the same day with the other - This last stock had divided so much that it could only carry two small pieces of brood in two combs - and it did not become strong in workers until the close of the summer and has not yet filled its hive as the one first mentioned which swarmed twice - Williams Prof. and John Roffee of Jefferson can testify to the above facts -

visited hives — done very poor — Robbing at Cy. Mr Wieland has a fine apiary, too large for bees to work much — all the better as bees must winter now —
(20) 46°. 56°. Wind S.E. — beautiful day — I finished a few barrels of honey in the morning — all of the stocks I took last fall are in prime condition — Mr Lovett comes now to be ready to work with power — Here we now have a second
slow pull brood in hives — (21) 52°. — Very rainy last night — heavy thunder and lightning — wind shifted to S.W. — after 8 o'clock in the morning — rain almost ceased off — sky lifted — sound of my G.L. Dr Lee fertile — drones will soon be in full flow in the village — the heavy rain excellent for clover — With fair weather a great prospect for honey — The wet and cool weather the queen in appearance to fill up cells of hatching brood but not yet appear on the sheets — (22) 46°. — Beautiful day — Found one of my very best Italian queens (fertile) gone — A beautiful Black queen just in a cage killed! the wire too close — Opened a hive which had a fertile queen (the first one of one a K. Leaf (Ohio)) queen cage — Most of the queen honeycomb drone brood! The G.L. had just released her drone — fearful situation — known to get rid of it — a great deal a lesson by the loss of so many colonies! Examined the stocks to which I gave the G.L. hives from the one — had some honeycomb — had cells from which drones had hatched quite full of unsealed brood! had also worker cells with eggs and larvae! This proves to be the instance mentioned in my book — Saw one of the G.L. hives to keep the G.L. on drones hatched — the new queen in last colony May 19th — the had plenty of bees and plenty of honey for them — had yet hatched some worker brood — the drone cell in which the egg was laid — See Record of Stock 1857 — A very fine queen from Cary's yesterday the best drones is fertile — Black queen from hive — Black hive in the fertility — Italian (Ohio) drone — so bitterly few Italian drones have hatched in the two yard hives — Black drones from my queen of 1856 by bees confined in the Nucleus Box have been so hatched since March — Found a queen hatched above queen excluder on the 15th — the bees hatched one queen — inserted 6 — the drones just have seen yet — all the G.L. hatched colony not so fair — Examined colony determine upon removal of bees — Many second of my hundred G.L. hives have fertile queens — Many queens too often come this — (23) Wind S.E. — cool — Opened one hive for swarming preparatory in the morning — bees yet be heard from the last little honey — Delay has caused a very heavy layer of honey in the cells inverted by stacking new — this goes heavy & fully of it — for other — Cards — Drone stores found on the

queen cells for had left me 6 — Have fly one at time so get as the strongest queens
in my G. H. hives — shall cut the them — Received queen from G. B. Cook for Mr. Wyman
of Pa. they to be able to get hand for queen — but is queen in the box — the colony
has a legend of drone hood — which will go to other colonies — Have a queen
blue queen — When drone cant remove the colony bred as a drone — Find bee
not clings safe to queen cell queen as long as old queen remains — shall cut the
big queen cells — after 7 P. M. that has been in cage 24 hours — bees did not
take the queen — Confined her — used confined the other — put queen
in cage — Found two more strong nuclei — (24th 52" 06") — Got word from E. Berger
my letter today — Found queens in double wire cages not noticed by bees — see
Monday — Queen put in single cages bees seem to get upon them —
Made two more strong nuclei — a third left — Strong queen cells
ought to have been shut in — Find my G. H. Hives in the
very great difficulty squeeze the queen isolator — not enough bee space
commence bees in the cages — In opening a hive out of 23 hives
with drone cells — two days ago — the little young — saw bee in the hive
Nelly not open nuclei about the bees clustering fly and bees piling
up the queen three cells left at first time — A nucleus with
honey was not running queen — I may two must be left by the cells
they are fertile — have queen cells running from one — I want at least
50 queens — and shall try to get them all in strong hives
get the honey and the bees to be 1 — two — (25th) 46" 55" — Hive which had
had to be — Second began to swell and bees got honey (26th) 43" 50" — Bees
active — Great — but strong hives — shall not attempting get in honey — Queen
queen bee by mistake in trying for 1st original queen — fast bee in another hive
where bees have drone — the bees seem to grow the queen — bees in
queen — fast — the drone bees have queen — see how the cost of fly
with bees — queen cell left the other only in bees hive left — See
my good Mr. for a very dear F. J. — should be — for queen
mother — the mother my position — was the queen seems attached particular
to the officers — Received a queen marked, the fourth of August queen
queen — the three the first — 3 fe — not drone — Don't see any the drone
may they queens very unequal — that is very few equal in the pocket!
Have the Italian bees the ones? only one — A fertile queen in a cage hive
with my few bees drones — drone — Now clothes are after hay
come out — we see, we in 1 colony and you need to be strong
opened shop — Queen bee go to the gutter — the bees in cage in
bees could not come — to the hive — and the hive — and the hive — and the hive — and the

Here new skies came on — Rash bees had accepted queens! We here would have
[illegible] — We did as well Prof. R. F. Clay — Colonel Worden — and re-
[illegible] — queen cells, only slept to be sure for some
days, new queens — Saw my bee Geo. G. Pollard queen fr. E.
and found in the mother — Strong much depleted all [illegible] from
[illegible] — Second [illegible] — [illegible] — [illegible]
[illegible] — Hive — here are almost flash queens from G. H. queen —
An [illegible] not my drone lay queen — effect [illegible] — was [illegible] by a
flash drone when he laid three [illegible] — [illegible] — [illegible]
last the lay queen — He felt bit of [illegible] when the cells [illegible] drone
[illegible] — [illegible] — [illegible] — [illegible] — [illegible]

day gave bees — prey abundant — saw bees go out to clover — abundant on apple trees —
Bees confused for opening hybrid stock u — did well — Gave queen with the L
cage to a good stock of black bees as soon as I took their queen — they stinged
her but did not hurt her — put her for fifteen minutes in a cage — stock confined her —
kept her in same form a few hours — took to a strong stock — May 22 hatched
out bees in my hives one year last — Nature here hard — many of them never
fledge out — bees going to abandon hives because no queen —
(30th — 62° " 82° — Great day for honey — Bees in nuclei fair all up — were
strong out out and in the eggs — Hives now with queen cells — smell queen
pretty — Left in this warm weather giving queen in the hive board — can see
queen when the bees cage — all I left 36 hours yesterday accepted — queen
not laying below — bees up too much — stock left up in some three
or four days into second story — Saw bees in helping swarms — (31) 68° —
84° = Splendid for honey — Society stock abundant — Shelved clover — bees
upon — Put go nuclei of swarm (three) from bees fed of bees not second
story — bees have filled up very nicely with honey — Lost out a fight stock (the
last night few eggs in the nuclei) after 36 hours of confinement — the bees learned in
too much — lost wing — shut among bees — learned my lesson — put in cage — six hours
longer. Now released bees — it has which had an queen given in the
29th then a good shower — found two sealed queen cells and one worker! Removed
them and gave advantage the swarm — Saw no eggs in cells — At 5 P.M. a very
heavy gust — strength of it not much — very slender — rain has fallen gently
after bees dark for an 4 hours — Stately rain — Well then rain —
(Aug 1st 88 " 86° — In P.M. heavy gust with hail — Blew an hour
after it began — a hail stone three inches in circumference we picked up —
Much rain fell — Hive with four nuclei blew over — all but one turned over
out — one had an Italian stock — found bees after three in the morning
upon bees — nuclei all up with but little damage — Friends bees — set under
heavy stones — ground very full of water — Had a swarm of bees from a stock to
which an Italian had been given four days — hived it just before the
gust came up — the stock had no queen cells — the usual number of bees
remained behind — all natural, chance of queen cells except two — (Aug —
Vanilla but beautiful weather for bees — white clover very abundant — stock not
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up to much — but bees thick upon them — became a stock to which a
new hybrid queen cells had been given — all destroyed — until a few days ago when
two queen cells were not hatched — when I threw away the hybrid and filled the hive
This stock a few days ago had an imported Italian queen not hatched —

Mailing bees — See journal Jul. 28th 1879 —

a

Mater Regia Huber maintains that without fecundation there
Queen — will be no eggs laid by the Queen

Dzierzon that Queens can lay drone eggs without fecundation — Huber asserts that if impregnation be retarded for a certain time — the Queen can only lay drone eggs — May not such a survival which of the Queen from some cause be incapable of being filled — if fecundation be delayed beyond a certain time? This can be established by dissection — In this way both these writers will be substantially reconciled — with this exception that Huber's opinion that fecundation is required to lay the eggs of drones did not stand — the facts as detailed in his situations are not inconsistent with my supposition — Dzierzon himself maintains that unfecundated Queens very rarely lay any eggs at all —

Experiment — By my tentative clinder several queens may be made to occupy the same hive — after they have been in a hive some time — they may be allowed to intercommunicate without any risk of quarreling — we may thus determine whether two or more Queens will live in a same hive — where the combs are not kept quite distinct —

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Drone Eggs — It is certain that a Queen knows what sex a egg will produce before she lays them — if she can know this — is it more difficult to suppose that she knows it because of a way in which she chooses to extrude them? This will make it easier for her to know — We know that in the Aphides one impregnation will last for several successive generations — The same facts have lately been shown in other ~~insects~~ creatures — The egg that produces a Queen is impregnated — the virtue of this impregn. may effect the ovary of a bee so that her eggs may have vitality — and yet an impregn. of this sex may be necessary to enable her to produce young as highly organized as workers — This will account for fertile workers — This can be determined by careful experiments (1) Let a number of hives be deprived of Queens — when egg hard sealed — take all but one — put her by gauze wire so that she cannot get to bees — take off her wings — see if any eggs laid — and what kind — after trying restore perfect Queens — (2) In connection with Mr. Hamet watch for Queen laying eggs in drone cells — remove — break part of them with pencil dipped in semen — restore — (3) Do same with eggs of a Queen where impregn. has been retarded — (4) Same with unimpregnated Queen laying drone

Omaka Regina Queenlessness - This is a very common and a very fatal calamity - If it occurs when there are drones in season it may be remedied - If at any other time the hive should at once be broken up - Unless it is a very good one and it is judged better to ~~take~~ give it a Queen of a week old - Hives are very apt to lose their Queens in queening time - especially those which contain young Queens which must leave & hive for fecundation - The apiarian should keep an eye on all such hives until he is satisfied that the young Queen has commenced breeding - Hives without a Queen soon fall a prey to a moth and often endanger a whole apiary - if a legion of moths had in them - Hives with bees enable apiarian easily to ascertain whether a fertile Queen is present -

Age of Queen - It seems to be well established that after the second or at most the 3rd year - Queens fail greatly in breeding - it is a general rule every colony should have a Queen removed and its place supplied with an other a Young One - every third year - Dzierzon thinks that a Queen generally perishes in her fourth year - If so as many non-swarming hives prosper for a much longer time the inset usually perish when a bee are able to settle her loss -

Queenlessness - When a bee first discovers a loss of their Queen they are greatly agitated - They usually fly out from a hive as though they were intending to swarm and rush in and out of a hive in platoons - and many of them enter a adjoining hives - When a hive is idle when others are busy - especially when it is found to be carrying in no bee bread - a Queen is probably lost - Queenlessness is annually a cause of a loss of many colonies where decay is often attributed to a moth or some other cause

Mater Regin Catching — In my learned hive by removing bars one by one — If the bees are all driven out into an empty box the may be caught by shaking them on to a sheet — Suppose a small box was placed on 1 sheet will the not go with a small portion of 1 bees into it? She might thus be very easily caught —

Huber and Dzierzon — Huber Queens whose impregnation was retarded seem to have been very fertile — Dzierzon says that but few Queens whose wings are defective and who are not able to leave 1 hive to be impregnated ever lay any eggs — he thinks that unless impregnated Queens are seldom disposed to lay eggs — Why then is that after a certain time has elapsed — 1 Queen altho capable of copulation are not capable of impregnation — that copulation is ordinarily necessary to 1 stimulation of 1 ovaries to egg laying — Why they will reconcile all the discrepancies between the two —

Medicine — Powder of bee used extensively by Homoeopaths — Old writer in Letters By Bee Keepers speaks of bees for dropsy — a powder of dried bees — Dunglison's recommendation — a dozen or more bees with hot water poured over them — the tea used for strangury in pregnant women — (Cure for mania — vaccination — bee powder)

Mater Regin — palace — May 6th 1852 — Have to day continued the stock with a = part nucs for queens — to go into the hive —

May 20th — 1852

Catching — shake on to a sheet some distance from the hive — start a few for the hive — then let them hard so that they may be seen — Queen in this way may be found — and if of a first swarm her wings may be clipped — June 1st 1852 — I am disposed to think that if new hard be given for Queen raising after the first attempt — more will be raised — have noticed that first let seem often to fail —

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R. Soc.

Impregn. of Queen. Arthur Dobbs - (Vol. 10 - Phil. Transac. Abridged) advances a idea that a semen of the male may be lodged in the vesicle figured by Swammerdam - and empty into the oviduct - which Swammerdam thought was intended to secrete the viscous fluid for sticking eggs to a base of the cells - Hunter Vol. 17th - advances a similar idea - and supports it by reference to his experiments on silk worms - (Jan. 29th. 1852.) Dr. Leidy dissected to day a Queen bee - I took her from an active hive which had become very much reduced in numbers - She accompanied a first swarm of a preceding season - and came from a hive which had swarmed the year before - she had therefore ~~wig~~ presided in a hive for two summers - The hive had been unused - all a summer - there were no drones in it early in August - a bee having killed them all off - The ovaries of this Queen were well filled with eggs - but they were not as much developed as those figured by Swammerdam his were examined when the Queens were laying - this when she was not - The poison bag with its ducts and a sting were examined - these ducts were larger than those in Swammerdam - the bag did not contain any acrid matter - but it had been immersed two hours in the water before it was tested - The most important point in a dissection was the complete demonstration of the spermatheca - distended with the spermatic fluid - Swammerdam figures it as a sack for secreting a viscous fluid for attaching eggs - it is much more reticulated than in his figure - interior cavity of a sperma-theca about the $\frac{1}{33}$ of an inch - It was surprising to see how large a quantity there was of the spermatic fluid - It did seem to be impossible that it should all be contained in so small a sac - The spermatozoa were very active - one unfolded was measured and found to be - Length $\frac{1}{350}$ of an inch - Breadth $\frac{1}{7000}$ } Not a trace of an ovary did be ~~diffic~~ detected in the common worker - Dzierzon has advanced the same notion of an impregnated sperma theca - and says that he has often dissected it and found it full of a seminal matter - but he says that a Queen has no poison bag - and suggests that this may be changed into a sperma-theca - so great a mistake tends to bring discredit on his skill in dissecting - besides all this he speaks of a resemblance of this fluid to a semen of a male - he does not seem to have detected it to a microscopic examination - this shows at once the spermatozoa - and demonstrates that it is filled with semen. Feb. - Dr. Leidy has examined two more Queens - varied antipathy last summer - Sperma-theca - full in both —

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Missionary, interesting address to. upon various topics connected with a mis^y duties. (R. Hall. Vol 1. P 159.)
Minister Christian, his general calling as a Christian and particular calling as a man, perfectly coincide. (R. Hall. Vol. 1. P. 162)
Ministry, in what sense independant of the people (Spir. Desp. P 1131
Ministers, present disparagements of. (Spir. Desp. P. 2709.)

April 9th 1852 – I am disposed to place my plan for rearing Fly Queens as next in importance to moable frames – The removal of the old Queen for one week will give time for sealed Fly cells – her removal for so short a time will be of no serious detriment to a strong old hive – When hives swarm let all the sealed Fly Queens be at once removed – and a fly hatched one at once given – This will save a week or more of precious time – prevent second swarm – and put the hives forward a week in numbers – Then in about a week all the eggs left by 1 Queen will be hatched – sealed – and bees may be moved for my purpose It is a mistaken idea that mother bees work –

June 8th – Plan to have perfect Queens on hand for A.S. – Have a swarm hanging to you – in day from or five hives have a frame with hatched or A.2 – shake bees on sheet in front of a hive second Queen – let her enter with a nucleus – after the rest to the frames hives they will form a nucleus – raise Queens – and be fit for inlay –
June 9th Take frame with bees and brood in right state – Shut up in a separate hive with honey and water – ~~when~~ in two or three days when Fly. 2. fairly under way give liberty – use such combs in making A.S. –
" Take a hive with say a dozen frames each containing Fly. 2. – Say 10 or 12 days old – to a place where bees are cheap – from each frame make one by cutting up – have of course ~~empty~~ frames with combs – say sixty for each hive – or the put guide comb or frames

Queen-1

Mater Regia – April 2. 52 – Plan for keeping on hand young Queens without making lines in which they are raised too much – Take away Queen from A – ~~Put her with some bees and cover in B~~ – and B to make a Ar. Swarm – Take them five or six days apart – When young Queen in A is sealed over – remove for one – give them a Queen from C – as soon as she has filled cells in the egg – take young Queen from B – put some Queen in B – as soon as cells filled take young Queen from C – put some Queen in – in this way each of the lines may be made to rear young Queens all the time and yet not be too much weakened – They will probably rear many more than on any other plan – Young sealed Queens to have away may be kept in warm place – might be put in a little box and kept under a setting hen – or a box kept in the hive – or the second way do – This plan in substance seems to me to be a very valuable one to those who wish to have artificial swarms – Begin in April – so as to be sure of there will be stock early – Each hive might be calculated on for at least two Queens in two days – Begin say 10th April – 5 Queens in April – 8 Queens in May – 4 in June to 10th – from 12 to 20 Queens – may be had from one hive – and yet by the precautions Queens the hive need not be too much weakened – It will also have time to flourish with its new Queen and to become strong – These lines may be supplied Queens for 50 cts. See side Page 3 – April 8th – Set unhatched Queens to be put under tumbler with a hundred or so impressed bees – can't in tumbler – double tumbler kept on hand for use – (E. D. S. – Put into a hive defined temporarily / its old Queen to be impressed) S.S.S. – Impressed Queens used for new colonies – others put permanently into the hives for which impressed taken – This will disturb with Queen Cells – be and wonderfully simplify use the bump of artificial swarm – A great idea but to day (Then small might in cool weather be kept in a warm room – or placed over a warm hive – The taking away of an old Queen to be replaced by a young one need not cause much delay – If the young one is not given for some time they will rear others – when these are sealed young one given in their place – No particular lines needed on this plan for Queen rearing – thought it may be best to have such – (See preceding page

Mosaic Institutions not arbitrary, but strictly philosophical (Whittington's Christian Rad. inv. p. 70-71)

Moth - Bee. Not a native of this country - When Bees were first collected there were few if any moths - all that was necessary to obtain honey - was to have the bees in anything hollow - and to let them alone. But these moths have multiplied so much that now bees cannot be collected without care - When there were no woods corn was raised with scarcely any trouble - not so now - "My father kept bees and had lots - but with the moths they have all run out." Explain why - Moth fond heirs - are parasitic - wherever a ~~moth~~ ca enters a moth will be able to enter also - closing the hive if it did always be done at the right time might prevent - but this not possible - Rules made of guarding against the moth - With the fumigating tube - ~~Fu to~~

Hatching - Put a worm ready to spin into a bumble April 24 - Kept in a room from 55° to 70° hatched May 5th -

Shaking up the hives will not answer for brood would (1) take too much care - the operation must always be on hand evening and morning - few will do this for any length of time - (2) Put under the bees disagreeable - it is their nature to run out on the board and you cannot go against it without serious injury to them (3) The moth is learned to fly and enter the hives to

some extent – even before sunset – and in the hottest day – (4) It certainly flies long before the bees have returned from their labors – The truth is that any thing clung in almost any kind of a bee hive protect itself from the moth – When a colony is greatly reduced in numbers or has lost its Queen it is almost impossible to preserve it from their attacks – The best way of defence is to have narrow entrances (you do not defend your hives for ventilating in hot weather) to have a sheltered situation and some trap on the alighting board and near the entrance into which the small and heat of the bee fumigates and from which the moth cannot gain admission to the bees. In this trap should be kept a piece of old comb as a place of deposit for their eggs – This with any reasonable amount of care will be sufficient not to entirely exclude the moth but to prevent them from seriously injuring a hive

Moth Trap.

Insecure of –

If we depend for our increase entirely upon natural swarming we shall be very anxious to save small and late colonies – Such too frequently become moth-breeders for the whole apiary. Ordinary hives may become queenless or have taken a supernumerary cross in that it being queen – Moths will then infest them –

Moths – Poor hives and bad management the cause of their great increase – When bees were kept in 1 old fashioned way, and all weak colonies taken up in 1 pail – more profit was realized than from most of the patent hives + good hives and proper management the great preventatives to moth keeping =

Queenlessness – When the hive is without a Queen or 1 means of raising one – usually they make no resistance to 1 moth and worms – of hive in such a state unless it can be removed cannot be protected against the moth – the loss of the Queen 1 occasion of all its woes –

Excessive swarming – When a hive is so much weakened by swarming that they cannot cover all their comb it is in danger of being attacked by the moth – Such a hive ought to have its entrance contracted – and its ventilation so regulated that the bees will not from weakness be obliged to withdraw from 1 entrance. All hives feeble in numbers should be managed in 1 same way – as soon as the moth have fairly got the upper hand, in all ordinary hives there is no remedy – the hives should at once be taken up or they will endanger the whole apiary – In hives with movable bars – the combs may be taken out and the worms destroyed – and thus 1 colonies may often be saved. Non-swarming hives are seldom much annoyed by the moth – they are sufficiently numerous to protect themselves – and so long as they contain a fertile Queen they are safe. As the moth are on the wing often long before the bees have returned home and in dull days at all hours of 1 day, it will be seen that no dependance can be placed upon shutting up 1 bees at night to prevent them from 1 attacks of 1 moths – The Use of my moth and worm trap by which the moth is enticed to lay her eggs and 1 worm to wind it cocoon outside of 1 hive so as to be easily reached, will be a great safe guard – but nothing will protect 1 careless Apiarian who tolerates Queenless colonies – from 1 devastation of this insidious foe. Weak colony will often lay 1 foundation for 1 ruin of a whole apiary – Every hive which proposes to be moth proof will in 1 end disappoint 1 expectations of those who place any confidence in it – If but one

moth enters (and bees of a Dzierzon hive offer no opposition) the wire tray will enough to cause ruin of a strongest colony in a very short time — My movable frames allowing each comb to be easily taken out and examined so that they may be cleaned from a wet and worse of the bee moth will enable the apiarian to save hives badly attacked and which would otherwise perish —

Rapid increase of colonies — A system of management which does enable us to increase our colonies with great rapidity — will be one of the best methods of contending successfully against the moth. While the taste for bee cultivation has rapidly increased — the difficulties of multiplying colonies have also increased — at good season of bees when it leaves a hive is adding £ value at about four dollars. hence the great anxiety to prevent over crowded colonies — natural swarming being so uncertain — and no system of artificial swarming as yet introduced with this country being of a practical use, and the unregretted fact of unwillingness to destroy any colonies in good condition by sulphuring them so strongly how much humanity in leaving them to starve — a to perish from a moth — and cause a ruin of thus stories?) — all these things arise from a increase of a moth — until in the warmer parts of our country where the seasons are longest and most favorable to insect development we are in danger of having a bee extermination — Let my system of management be introduced — and the price of swarms will speedily fall persons will also in lieu of swarming on a large scale for sale — and the temptation to waste time, patience and money — or its equivalent honey upon feeble swarms — or moth breeders will be taken away — But if bees are kept on my plan such colonies may be strengthened at the right time — by bees and honey — and all feeble colonies may supplied with the strength of the strongest of dwarfs will not permit this — by taken up — we may bid defiance to a moth —

White — I find my practical writer dwelt to this order as attracting a moth a place of moth will catch them — white dishes with honey and vinegar — good — there can be no doubt that white attracts a moth — (Hive cleaning — Every Spring the frames of each hive may be put into another hive — the old one most thoroughly cleaned — all eggs of moth eradicated — and any little repairs made — then a bees may be returned — this may be done at any time if a moth have got in — this one crowning excellence of movable frames —

Smith — Many infallible remedies!! Cure in almost any kind of skin —

Lance of Smith — (April 8th 1852) Do not think that they will be able to cure the sides of glass hives —

(April 5th 1850)
Drone eggs how to rear Queen — A friend has a virgin Italian Queen — She lays no eggs yet — he has no other queen — If she lays eggs he can get a pure queen impregnated thus — When she has produced hatched drones (which will be pure Italians) let him watch her laying — (lay in an drawing her) remove comb before opened of eggs & dry — impregnate artificially — give these eggs to some bees having no queen — let them rear operculi will be pure — then let her be impregnated by Ligurian drones — and the thing is done — would be one of the most beautiful experiments in the wide range of Natural History — feasible — and had I time I could do it —

Nuclei for removing Italian Queens — State of this day — May 22, 1861 —

a N

(I.) All Dr Mills hives have queen cells, one sealed when opened yesterday — the other opened today — No eggs from my best Italian —
(27th) Cut out two Q.C. — and removed with bees to make a nucleus — (28) Bright home — 2 Queens hatched — taken away — 7 A.M. — one Italian hatched and given to stock (5) — 9 — Then cut the sealed Q. Queen — (31) Gave Italian Q. and took away sealed queen —
3 Jun — Found a beautiful bee Italian — could find of hand ready to seal and yet seeming that he has been in hive some time — Think that she is the beautiful queen I noticed 11 days ago — Found a swarm and set old stock in place of a strong stock — Made two other artificial swarms — One from one old hive (2½ bushels) from other hives — queen quite slender and small! — Hence queen can lay then as many eggs as a large one perhaps — (8th) 61°.72 — Rainy — wind S.E. —

May 22
(II.) Dr Mills has two imperfect Italian Q.Q. — bees from my best Italian —
(23rd) One sealed day — (24th) One sealed — (27th) Removed queen cell — (30th) Put home — Took away Q.C. and gave them one from my best — (June 3) ~~Queen hatched but worried and killed — given to Italian~~ — Hot N. — Now N.E. — Much rain has fallen — Queen bees have a good chance to fly in with eggs — Never saw such a profusion of white clover — If weather good bees must have a plentiful pasture — Set out a queen confined for about 30 hours — bees carried her but did not hurt her — Set her up again — Made two nuclei for throwing bees in my Hive — (4th) 65°.70° — Cloudy — wind strong N.E. — bees cut brood comb — Made two swarms — Gave Italian queen

May 22
(III.) Had one imperfect Italian — (27th) Cut out — very small — that Put may be to it — gave her bees — (28th) Took out Italian for artificial nucleus — (31) Hive hatched a beautiful yellow bee queen — gave her to (No I.)
1 Jun — Hatched bees at Cartons — Found a swarm — cut out three combs — queen — fed — accepted — Made another swarm for bees — queen not found — Had another beautiful Italian bee queen hatched — Think that this queen under favorable circumstances lays better — Cut out for bees and set bees in place of imperfect Q. the sealed queen — noticed the great superabundance of royal jelly — Have seen much less in most of my swarm nuclei — Cell from which beautiful queen hatched closed up again — old cup remained fresh — noticed same once before — June (5th) — 56°.70° — Third day — Some sprinkling of rain — At noon much warmer and bees began to get

May 22

N (IV.) Has two sealed queen cells. e Sept. one yesterday - [illegible] - (23rd) [illegible] - (24th) came from cast [illegible] - (25th) [illegible] - (27th) [illegible] - (29) 2. hatched this A.M. - (5th) Queen last - gave [illegible] honey - The hive which swarmed on Saturday - and had queen cells destroyed - swarmed again to day - had no queen cells - returned queen and put on 2. D. - Hived a swarm - did not get queen - placed them with one of my best queens from a nucleus hive I could find out - Then 7. 9. D. hatched to day - one very more colored - two another beautiful - another when just hatched appeared to me to be the most beautiful I have ever seen - all large - the last two from a G. Hen queen that left after being

May 22

(V.) Has two sealed queen cells. (23) one spare - (24) [illegible] - (27) Removed one 2.C. - put a large one from [illegible] - (28) gave them 2. D. to stock [illegible] - gave them hatched 22. from (VIII) [illegible] - Dark Italian I found in another hive - hatched queen which had a beautiful 9. D. Not very at first a dark large - found much dark brood - the mother [illegible] - some in another hive, a sealed - another hive sealed - one cant regular with eggs - two but little room for eggs - cant really all full of honey or brood - The queen cells - one sealed - removed queen and the sealed queen cell - put queen in a nucleus to test her - Dark weather has been very favorable for breeding - and the queens have

(VI.) May 24th - Has unsealed queen from (5th) - (27) gave sealed 2.C. from (VI) (29) Removed 3rd. cell - [illegible] - has 4 queen cells [illegible] - (30) Two swarms to day - [illegible] - (June 3) [illegible] - [illegible] - (6th) Two colonies in hives with patterns deserted - returned them and put some comb in hives - in one used only 4 quarts and ten pounds - Hive has swarmed a number of times (60) swarm and the swarm put in a new hive - One more colored queen very dark - the most beautiful one not so highly colored as some - yet another very dark queen - both from queens reared from a lovely queen - Am putting on the outside of my hives a good number of comb to be filled with honey

(VII.) May 26th - Eggs hatched - some eggs [illegible] Queen sent to D. F. - [illegible] (27) Gave sealed 2.C. from (X) [illegible] 4th Removed [illegible] queen cell - [illegible] and to be [illegible] - [illegible] used to aid stocks defected in stores - (7th) 52°. 74°. Clear - strong N. E. wind - bees work only moderately - A swarm with queen and no comb clustered - hived and no comb given them - Made 3 A. swarms - Found blackened comb in cellar full of worms - Took queen from stock where they moped her gave 9. D. in a cage - in a few hours let her down - [illegible]

(VIII) May 27th – Made up bees from I. and two sealed queens – (28) One 2.C. unnamed hatched
it has no insert but in cutting out – queen hatched out 2.30 – gave to 6 (?) N
and put in cut queen from my hand (?) (June 4th) Removed fine queen – and gave brood
~~brood~~ A queen in small cage given to Mr Sturm – found dead – Queen
cage – Colonies with the Guide frames and no comb cannot be hurried to
stay – Bees are building comb all along between the guides – Saw a
number of ~~colonies~~ large swarms without guides – are evidently entering better –
The bees women weather for honey – but the are gaining in brood very fast –
(8th) 52" 74° – N.E – cool wind – when moved up bees here worked well –
A fresh swarm with a young queen deserted – queen lost – joined to others –
(IX.) Made up bees from the (?) and found one – with eggs and (?) queen cells
taken from (VII) – (29) queen cells cut out and tested – (31) only no queen cells – (June 3)
Two cells in the hives – one swarm – A natural swarm – and a fresh
swarm joined it – The one to have comb were all going away – The natural
swarm from an old stock to which an Italian (young) bee queen – giving a
young queen does not prevent swarming – 9th – 44° – Wind N.E – cool very
early – bees have worked well – never saw such a wonderful blooming of the
white clover – fields can be seen for half a mile white – Fresh fresh
swarms – gave no guides intending to do so in a few days – 11th New swarm
with guides and no comb making fast work – Two Cary No (?) queen hatched out
(X) May 29th – Made up (?) Cary bees – (28) Gave sealed Queen 2. from (IV) (29) 2.
Opened hives during the same time – one had the other – both large and handsome
A Cary No 3 – hatched – handsome and very busy – Cary No 1. and 3. unhatched queens – A queen had opened her cocoon – it was so soon the bottom that
the could not hatch – had gnawed it higher up – opened for her to come out – was
very ~~busy~~ shy – dodged in a number of times – very different from dark queen –
(30th) Stock to wh. I. H. 9.2 had been given swarmed – found only one queen
cell and that just ready to hatch – Two other fresh swarms deserted – one
had it evidently comes taken out yesterday P.M. – Two swarms out together
(XI) June 1st – ~~bees in hives – a few [illegible]~~ when I shook in place the
fresh one queen escaped – hit hard – did not hurt her – Shook the bees
to the ground – Bees getting much honey – Like in the clover there for queens for
4 days – (1st) Warm but windy – one swarm deserted – returned – in
the day have swarmed wind powerful – returned to hive – think queen got back –
A swarm left beautiful Cary No (?) hatched – Have more queen cells than I can
take care of – bees get much honey – take no notice at all of honey in comb set on –
Turned some inside – Saw a demonstration of Hymis theory – a queen c[illegible]

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(XII) ~~[illegible] bees and [illegible] J. Cline (June 9th)~~ — Had cells of proper depth on one side — N on the other very shallow sunken cells — on the deep side many eggs laid — a few on the shallow — these have been capped as drones — the bees scattered the eggs — had a good chance to make the setting gauge — Dr Rutland informed me in March that he once saw eggs near the ~~[illegible]~~ margin of comb when sealed they proved to be drones — have to doubt that an egg laid by queen taken out of hive and put in another cell be a drone and if at once finished with worker or another — clean honey very spicy in flavor and very white — (12th) Hot — clear — with windy in A.M. — bees work well — not notice honey dew — saw an Italian bee on a piece of new comb in both of a tree — carrying it into small pieces and packing it upon her ~~legs~~ legs — they strong

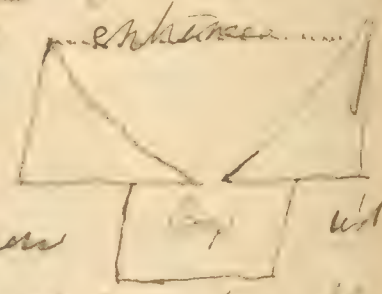
(XIII) J. O. [illegible] — Italian w. swarm yesterday swarmed again to day — next week — found two queens had hatched (it had a very Italian queen some time ago) found two cells with perfect active queens in them — Hot in — A hive w. swarmed a few days ago had sealed queen given — had formed sealed queen cells — the old queen was confined — let her out very active — very large quantities of royal jelly in the base of sealed queen cells — notice that in large stocks getting ready for swarming there is a much larger supply of the jelly than in others — the workers turn a sealed queen about ten last night — this feeling of insecurity very painful — Queens seem to be very slow to get impregnated — windy weather may cause it — (13th) Hottest day yet — A colony with Q. 2. w. swarmed yesterday did the same to day — Plenty of bees-honey and unsealed brood — gave her to another colony — In a colony without a queen and combs filled up with honey — and crowded with drones — removed drones and gave Cloverdale queen — 2nd. drones from ~~[illegible]~~ queen at first a dark layer — handsome bees they have been for this queen — A queen hatched had opened a queen cell — removed her and the bees closed it up again — Rather too hot for the bees — honey very thick — (14th) Very hot and dry but pleasant breeze — bees work better than yesterday — made a nucleus of swarm one that had not its queen provided with caged unfolded one — but afterwards left and joined a swarming hive — saw an Italian colony wasp (white faced) and picking on it legs like prophylis — A hive w. had swarmed — had Q. 2. cell given — cut corners it Q. 2. to prevent her from hatching — cut back it queen cells cell destroyed as I thought (one excepted) — appeared early this A.M. to mean swarming — seen at — flew briskly — at last found the Q. 2. from cell — carried out putting in the patch — found another hatched queen and many more cells — did her best to force her to swarm — (15) Hot — cloudy the night before having been sultry — at 10 P.M. wind N.E. — and much cooler — night cool with strong N.E. wind — bees have gathered much honey — at 11½ P.M. on the 14th found three queen hatching and sealed two — A new swarm with Q. 2. left and joined another hive — I found the queen with a cluster on the outside of hive —

(16th) Fry cent at 8 A.M. – At queen had mended & queen cells – Opened hive for a time after – We had added one – began to open one at 1 P.M. dead – found to have deserted eggs – pushed hive off from the cellar – left the ~~[illegible]~~ returns – put in a dead cell she found this too – queen dragging ~~[illegible]~~ – Here our first unfitted queens in separate cages – one one nucleus – Whole close very frequent – cell larger hanging in it! never caught before – saw another cell from which queen had flown out and which doomed me by being closed up by the bees – (17th) The cell opened by a queen and closed again by the bees did not hatch – Another partially opened by me and covered with a wad of wax hatched – Have a handsome Italian Queen from the drone layer (see June 5th) Seeing that she has been impregnated by a worker Italian drone – and as none were hatched when the first began to lay – conclusion that a queen may be a drone layer and afterwards become impregnated and become a normal queen! My theory as to color of Italians seems to be confirmed – ~~[illegible]~~ – to day I have had quite a number of very beautiful Italian queens – such as I got when apple trees were in blossom and the nuclei were in good heat – which have raised when they had to be fed and were discouraged were generally born in color – I have put as many as six queens in cages over a nucleus leaving queens and the bees feed them – I see no reason why almost any number might not be disposed of in this way and very great advantages be received – We can keep them on hand late in the season – make a smaller number of nuclei do more business – have the queens when put to colonies ready to start the nuclei forthwith and to lose no precious time – I the colony ~~[illegible]~~ – with so many had queen cells: one hatched in the afternoon – in the P.M. I found that another had hatched and that the two had not fought – and that there was still another queen cell! I did not know that there could have been – May not the presence of many queens in cages delay the queens from fighting and from killing rival queens? At 2 P.M. – a thunder shower – raining in a fine rain of several hours – doing a world of good – lots of the ground was hard – and cannot be reached rain – it gives the bees a season upon the white clover – At 8 A.M. very windy – A nucleus whose queen ought to be fertilized abandoned its hive – another with a queen of only two days old deserted – one of nine two much crowded down – After hiving the first – the bees acted as though she was not in – in hiving the second saw both queens go in – the one not belonging was imprisoned – gave her to her colony when she again took wing and returned to the same nucleus – removed its queen – and later found her alive in a very little hemmed in – (18th) Cool at 8 A.M. – At 2 P.M. – a very fine shower – on the nucleus with so many queens found one dead and another that died – when there was but one between (of course (see 17th) bees did not get the one in the cages as they did on the others – this shows that precautions are needed – Found evidence that two or three queens have not common drones – 3 See 70

Non Swarming – If the wings of fecundated Queens be clipped they will be prevented from leaving the hive – This may be done in my hives. Many advantages would result from this – If it were regularly done as soon as young Queens commence laying – then swarming would be under the complete control of the Apiarian – (perhaps occasionally a Queen would try to leave – be lost and thus swarm takes place from the young Queens) – Queens sometimes fly away with their colony from hives which are very much disturbed – this would prevent them – and all operations may be performed which are necessary for profit or enjoyment –
In this way the age of Queens will be known – In the management of a large apiary it would be of great advantage – as it would secure the Apiarian against that excess of labor which drives him on the road plan – and would enable him to work more leisurely and to more advantage – If a clipped Queen endeavors to leave the hives – swarm returns if then supplied with young Queen nearly mature – will not desert – the other young sealed queens may be taken to be used –

(Italy 23. 1861)

(Non-Swarming) Let wings of queen be clipped – on projecting edge of alighting board – have a triangular wood – keep it there edgeways so that swarm may get – she cannot climb up it again – or have strip of paper or wire gauze that the bees desire to get by it without climbing up – bees return and queen may be returned – or before bees return – queen may be removed – hive closed until next – similar one put on side – when returning bees begin to enter queen may be given. (If there had a swarm transferred not taken – a glass box or box with glass sides could be placed by so bees that cannot fly? Such a box (one for simplicity) easily fixed to each queen – triangular blocks may be set there.



If the sides of window box quite smooth and chaff set a little that bees cannot get up – These blocks may be stood up on end to letter adhesive so as to present such a height that the queen cannot go over them but to fall into box – These blocks need not be set on the ground – some plan to prevent perfect queen from leaving hive – after fecundating – swarming

Journal continued from (39) – June 4th – 1866 – 70°.. 84° – Windy – Bees (1)
have worked well on clover & sweet gum – Sweet honey very thin –
clover thick – bees do not gain so much honey to seal up from the bees
as they seem to – (6th) – Bees swarmed yesterday – some
of the strongest! – Gave syrup with whiskey to the colony (queen)
that turned out late queen – hatched on – new cage – hatched on cage –
most of them came out on the side of box – a few state reigned
queen – flow a failure – too much whiskey would be needed – even if successful –
Thunder – a little rain – cloudy most of the day – At night bees came
in very heavy – from honey dew? Not much dew in clover – Wind S. W –
towards night the dark of rain – wind west N. W – much cooler – bees
begining to lie up well in small boxes – if a good day for honey
tomorrow – this tomorrow night begin – cool bustling in the
pinches are coming admirably in fences – He uses sweet gum –
mellet so as to get rid of all impurities – Hence pulpy cage gum
may be used to advantage – If dipped with tar-glue to my hands for
bees to lick it – discages them – This very important to be noticed –
Find it very easy to put on and take off the smoke box – easy to get
out combs and then free – easy to remove them all and get at queen –
This owing to the brood being so easy to handle and the leading being
in a place to keep them – (9th) 58°.. 74° – Sun very hot – Bees working
admirably – Gave one hive very heavy with a thin honey – some of them
think it probably has been stored in honey – Saw such bees in
the woods of the Tulip tree – Holy Scripture – ~~Canaan~~ –
to Canaan here in fact – bees work on it – can produce no!
honey – Commandments have time sections – Dispensations are stated –
Rapidly state festival on – White clover very sweet – (8th) 46°.. 74°
in the sun – honey getting about as yesterday – Took off a frame
full of comb – examined comb – put them on again in about ten minutes –
very quiet – to see how easy it can be done – If bees will not bend

comb under blow — no difficulty at any time with so many blows
Removed a queen at 4 P.M. — on the 5th a second queen cell at 4 P.M.
to day — left out in the A.M. — a fertile queen escaped on the 6th —
after so many queen cells — supposed an old first cloud in P.M.
These drones eggs are laid in drone cells — the bees find it often very
difficult to get out of the cells — often die in them — this especially the
case when they are close together like tacked — 8h. 50m. 74° — Bees working
very well — Impatient — although hive may be crowded with bees and
honey and brood — the drones bees seem to be not inclined to leave
so long as most of the honey gathered honey is uncapped. Have left bits
not to allow to leave comb at one end too — Bees are in most
of the hives getting rich but have not yet started well to honey —
9h. 18m. — Wind at E — very cool most of the day — one gets
getting honey well — bees bringing in much drones and blow out
in great abundance — about second swarm hanging drones — At 2 P.M.
drones in a glass hive lay closely huddled a fresh lot on the
outside — bees temperature before — At 3 P.M. bees come
out and fanning hive as much as they often do just before turning
drones out so closely packed under the entrance as almost to smother
them — We have had bees letting off drones and yet honey coming
in steadily; cool nights and days may cause it — 10h. 50m. 74°.
Wind still at E — almost first — Splendid day for honey when it
opened up — Hazel nut in quart of drones on the outside of glass
hive — chilled — drones almost huddled under shade — remained
and fellow blow — After sun down saw bees drive off (glass hive) a
few from the comb — Does this early destruction of drones imply a poor
honey harvest? Fish out — (11th) 51°. 76° = N.W. — Went to Crescent — blew
very hot sun — (12th) 78° = N.W. — blew HOT — (13th) 52°. 80° S.W. — blew
hard very hot — Bees work well on clover — but do not seem to pile
up below as much as they comb as fast as I should like — the honey drones

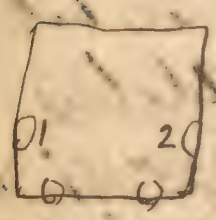
and many hives — I saw drones expelled after attempting to fly — Are up in bees commencing — but no brood yet — a few days more and it must begin if they continue —

Impulent — Am satisfied that it would pay admirably to cement my small bees — Maybe it could be done very easy yet for them to do it — so they come to be centered — It could be done before the lots marked on — with thin flexible knife — (gold leaf) dipped in melted resin and tallow — one person to do this and one to nail boxes together — done when box has bottom nailed to upright and is taken off frame for nailing — to be turned to have lots marked on — Might not glass be held so as to have three edges dipped in paste — gum dellac (two drams) glues in some proportion melted easily held in a proper state — so that at least six of the eight edges might be tight — (14th) 56°.. 88° — S. W. — Clear — Sun price — bees working very — clover — cut some slate on Tulip tree — some lady yet to expend — so far are as to be of small account — Many fines expelling drones — never saw them do it so generally when they abundant — Expulsion ~~Saturday~~ (15th) 61°.. 84° — [illegible]

(16th) 70°.. 86° — Very hot Sun — bees working admirably — Do not seem at all disturbed by the heat in the clustered hives after sun-set — Some thunder showers about 5 or 10th of an inch fell — A truly [illegible] rain — (17th) 66°.. 86° — never felt a closer atmosphere — Bees working [illegible] on the

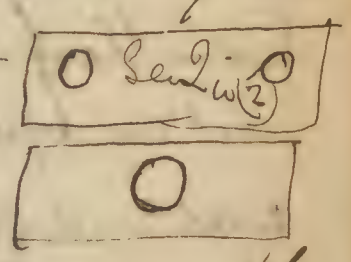
white clover — Before noon clouded over — heavy thunder — about 4/10th of an inch fell — Some saw a greater light in the bee-house than the air swarming with returning bees — If the hives had had extractors it would have been impossible for the bees to have got in without great delay — The apiary looked like one vast mass of swarming bees — Bees hunted on a gray queen hitched in their flowers after their queen had been caged — a very unusual occurrence — Bees not yet working in boxes — hives not full below and honey not yet sealed over — A few days more and if this splendid weather on clover continues they must work in boxes — The only point I have any doubt about is how the wax guides will work in the boxes — whether they need comb as a pattern to start only one comb = 18th 66° 84° — 5 A.M. — Before 10 O.C. last night it began to thunder — and in an hour or so a storm began which will be long remembered — The heavens were a blaze of light nearly all night long — and the yard of gray thunder — It seemed to shake all around us — By sunrise the wind blew fresh from the N.E. — soon changing to S.E. — S.W. N.W. — and blowing about very much — 1 7/10th inches of rain fell by 6 A.M. — This storm must have inflicted great damage upon crops, hedges, roads &c — A little hail fell here at intervals — but not enough to do any damage — I am anxious to see whether such destruction of the ground will check the flow of honey when clear and hot again — It must tend to injure greatly the display of the white clover which is in full blossom — 9 A.M. — 1/2" more of rain has fallen making 2 1/5" — and with yesterday's and night before last — 3 1/5" = Before noon sun very hot — and bees working well on clover — P.M. — Bees working splendidly on clover but the honey is thinner — filling of boxes seems to have stopped — The large stock with six supers (2 uncapped) — and which last year — are to day for the first time putting honey in boxes — Begin to think that two better than three in supers — 19th 68° 84° S.W. — bees worked splendidly till 2 P.M. — when thunder shower came up — .35 of an inch — Nothing more after the shower — Bees building queen cells here and there in an unusual

hatched on and killed very queen hatched from cell given - This A.M. - one thus [illegible] after the bees quitted queen cells! 20. 66° P.M. S. W. - A.M. - cloudy - and too wet for bees to do anything. Last night bees began work in my smaller boxes - I. The clay began in front a few bees - on the side! not entering the wire guides! - comb running in the right direction! P.M. - Dry! P.M. - bees began to work well on clover - but by 4 P.M. wind chopped to N. W. - grew some cooler with wind - and bees slacked off very much - Wind now blows beginning to work in boxes - not working from the top down in a single line! some going the wrong direction - By Impulse or Regulation



If bees generally incline to begin low down on one side - might fill the wire guides to be low down - as at 1, 2 - ? They very soon extend the comb up to reach the top - It would seem to be more natural to them to begin down low down and close to tops of frames - Notice I have very few Italian bees in begin comb building in wire guides above - Black bees evidently not give the free of bees - they in fact [illegible] comb building - Black bees seem to draw more wax and comb building were advanced before in cool weather - except when bees swarm - Bees not Italians inclined to begin below more than Black bees because they work in dark hives and want to be near the mass of bees? The building of drones has almost ceased - only in new hives placed in the shade where most of them have been [illegible] (21st) 58°. 68° - cloudy - most of the day quite cool to raw - P.M. - for two hours bees brought in much honey - Sun and a few degrees warmer in hive made it a splendid honey day - 20. 57°. 72° - A.M. - P.M. - cloudy and very rainy - Bees have begun work in many of the upper boxes - Imagine an eight hive day gone - keep from glass to glass - In more or less hives they begin above - Set the letter - put wire guides about half way down on both sides - a or one only - The new plan for bees work just - I suppose it would - place of starting experiment - Do not want comb for guides unless very wide - A great advance step gained in seeing satisfactory honey for the market - For the last week bees have not worked much more than half their time - and

yet flowers are getting very thick in hives — very few swarms — Over in the a hundred stocks repeat nine as yet — This week if get rain bees must begin to swarm freely — Dry R.R. sun came out and bees began to work hard — Warm weather needed for fruit trees or clover — At Europe Linden at Dr Patterson's — has been in blossom some days — Seems as if to day beginning with bees — Season of Linden might be extended at least two weeks perhaps three by having different varieties — In 1863 the European blossomed in some places about same time — perhaps a few days later — the American unusually probably does any blossom until July — If bees work well strong in small boxes — without any guide (tiny wax guide is same as nothing) have nice with large side wax guides — Better nothing than poor comb — Melilotus officinalis (Sweet clover) just beginning to blossom — bees on it — (23rd) 61°. 94°. Bees work briskly here — fix so much clover — Fear that they are too late to make a large amount of box honey — In a few of the boxes I have that they need guides — Am I right in making holes to hold the combs — Would it not be better to make them nearer center (See 24th)



and perhaps one 1½ hole — With this inclined less with comb building some air through 1½" than two one inch holes — Do there any need of the entire inching holes? Have two in the way of strong comb building — If one 1½ hole in center and a wax guide on one or both sides about 1/3 of the way up, bees will probably prefer it very much — (24th) 53° .77° — Have had some very large queen cells taken from a very strong stock — such cells always have an excess of jelly — much more than ordinary — Do not queens bred in such cells average greater fertility? This is a point of much practical importance — Hunter lost a dime in P.O. — offered this bees unless letter — penalty of the market in honey shows two — per the season thus far — 25th = 58°. — Went to Perkyty at Lilly Hill — Rather too cool for bees to do much — 26th = Warm — trends 4 P.M. — bees under unusually well for this season — come in very late — 27th = 58°. — Much warmer bees have done a good day's work — Work in boxes progressing — only a few stocks

are working in bees – How are I Lea bees have seemed at all this season – and except where hives have not been made in bees – While I Blacks seem this season in Sept? Have 2nd cut of red clover in fairly to gather – Linden almost nearly to flower – Hope yet for some surplus – (28th) 61°..82° – Good day for honey – Linden (Lime's) on warm west side in flower – has been for several days – Not as warm yet – (29th) 61°..84° – We left two nights here been good for corn – for a week wind N. not N. nights very cool – the great rain followed by so much lower temperature in the height of the honey harvest has told against surplus – Bees are now getting well – Linden in part – extinct – dark colored honey in comb – [illegible] (30th) 68°..84° – S. W. – Good day for honey – Hive which (swarm) killed off most of its drones some time ago – carrying at them again – Yesterday and to day made sign artificial swarm – Work very well – Have one cartel hive with the queen – 10 queens – Gave a laying queen to a nucleus which has been rearing queens – Next day or two after saw a small certainly colored queen come out of a flat chaser looking cell – Rifle to a nucleus – gone – Some three or four days later found a small queen a few days old in nucleus with the laying queen – light color like a darker Italian with colors blending like hybrid crosses a little less hair in my hand – She stung me so as to hurt considerably – but as I was a darker stinger disposed her – crawl very small – spermatheca of usual size – appears to have had a darker cloaked set in dispute as well as the Hives = July 1st 68°..84° – S. W. – Splendid day for bees – 68°..86° – S. W. – Shower with thunder at a distance – also yesterday – Splendid day for bees – A special colonies work very well – Queens in comb building small like the new queen in laying – concentrate – do not begin on so many combs as much bees – prefer to put up new work – Last night set out of a stack with many queen cells a nuc of comb – the three more good queen cells – bees in hand – Early this A.M. found bees at one chamber and [illegible] out – the one left was the head

a little on side — Could find no queen and no cells from which one hatched — Five hours later the bees closed at top just as when I opened for examination! In the P.M. found a beautiful queen hatched from this cell. Opened from importance? Bees do not ordinarily molest such queen cells — (3rd) 68..8 Bees working admirably — (4th) 70°.. 94° — Hottest day for a long time — bees scarcely decline from full work — too hot — Garden be just trying to bees suffering for want of rain. After sun-set showers — Heavy thunder and wind most of the night — ~~at 4 P.M. began to rain freely~~ (5th) 70°.. 82° — A.M. — Began to rain freely at 4 A.M. — A slight shower after sun-set — 6/10th in all fell — Splendid P.M. for bees — all nature gladdened by the showers — (6th) 68°.. 86° S.E. — Set mark in A.M. — P.M. — bees active upon clover — White clover in pastures nearly destroyed — on road sides in its prime — No heavy rains here during a long period on road sides and places where it is usually scanty carry a little or to be dried out — How much longer will it last? Amazing satisfaction that bees work up better in my new concept of hives than in any previously devised — 7th = 70°.. 88° — S.E. — Very showers with thunder all around — very light shower here after sun-set — Hail for honey — Find no difficulty in injecting water with water and syringe even into a cracked — can burst her receptacle! If queen is not so hurt by proper syringe to open for injection may succeed — Can squeeze queen between fingers so as to inject — Died 9th to day — What much violence to bees — Hey with stand it — how much propolis can safely be used — (8th) 70°.. 82° — At sunset after sun-rise — Sun nearly obscured A.M. — P.M. — excellent for honey — white clover still good — (9th) 68°.. 82° — Observed in A.M. as yesterday — Set for much honey thunder heard — few drops — In fair vicinity just hatched young queen (queen to stocks from which swarms were given and which have moved to new place) gone and queen cells in place of them! One hatched after each queen also gone! Has honey found stocks have not as a general rule received just hatched queen as well as stocks from which queen taken and nothing else — do they become suspicious? have reason to examine more closely into the track flight upon them — (10th) 68°.. 82° (Note — Thermometer feels hottest air — cool in heat of day if some expired range about 4 P.M. Sun obscured in A.M. — not much so — P.M. — bees worked well on clover — are very busy — Mallow not in bloom — A few ones of this insect genuine as

good supply yesterday — By Midnight — Small Bees in the one can feed when supplied not very abundant and when large — bees could not be fitted —
11th) 90°..87° — Very dry heat — less rain state on white clover — active on mellilot — Melissa Integra fed a great in Upper — (12th) 90°..88° — heat oppressive — greatest at Village bees — Cornelia active while clover state in flow — what heavy air cut — can smell but clover are heavily — Weather changing — (13th) 76°..94° — Hottest at sun rise this season — Cloudy at night — a few drops of rain — (14th) 73°..94° = Under tree 98° — Bees can do but little — Removed yesterday two small bees from — last flow are attacking bees — left in a few minutes — this quick leaving of bees very injurious — Melissa has now been unusually late for a long time — seldom if ever equal — There is most to do long in supplies bees — Would it not be best to cage queens and let the bees rain others in all the free stocks? Sap flow consumed — very great second — one stalk plenty of bees as bees have now too much wind — (15th) 73°..94° Zenith heat — all on the country — great loss of life from sun-stroke — Late in P.M. — Cumulus heavy thunder cumuli came up from N.E. — 9/10th of an inch! Grass on and sides and pastures beginning to dry up — At Upper rain — (16th) 72°..92° — very little relaxation from the intense heat — 2 to P.M. — Storm in the Hours at a distance — (17th) 74°..98° — Under tree — Unprecedented heat and loss of life all over the Country — Bees of Hamilton on 100° in Montreal — higher than in August — Lotus unity on next clover — some work also on white clover — but work on Mellilot — Storm in the W. with distant thunder in N.W. — Shut 4 P.M. — heavy thunder and rain here — the N.E. — very slight quantity of rain here — (18th) 74°..99° — Under tree — Thunder in N.W. with showers at a distance — At 10 P.M. distant thunder — 2½ P.M. — heavy cumuli — N.E. with copious showers and very severe lightning close at hand — Thunder and lightning affects small colonies — one inch — (19th) 69°..92 Under tree — At noon thunder and heavy clouds — for 4 or 5 hours — only a few drops of rain here — (20th) 70°..92° Under tree — heavy wind and rain of Saturday very injurious to corn and oats — bright grain — pastures and backs of corn — (21st) 70..94° Under tree — (22nd) 72°..92° (23rd) 70°..94° = Thunder in N.W. at a distance — (24th) 74°..92° (25th) 72°..90° (26th) 72..86° (27th) 69°..88° (28th) 90° — (29th) 68°..6/10th of rain — from N.E. — (30th) 68°..80° = 1¼" of rain from N. — (31st) 66°..

Journal for 1869 — May 13th — Journal discontinued from old (Laws Sep.)

complaint — Result of last season very disas-
trous — Left 50 lbs of sunflower honey in barges — 1/3 of colonies dead
to be taken up — no honey with necessary exception after
July — but little stored with — Art one blown! great strength
of stocks — good wing to eat up honey — Immense mortality of bees
in Chickasaw — see Bee Journal — We lost but few — none
by disease — By middle of July began to feed — some stocks
could not hard lived a week longer without feed — Was better
to wait until cool weather comes — placed them in the
cellar under a carpet — fed until 1st of October — Now bees
began to get from fruit to blossoms — Here had a wonderful
profusion of fruit blossoms — apple especially — Here had to
employ every hand to attend them from seventy
stands yesterday — Never saw more secretion in blossoms —
Stocks here given undoubtedly twice over — but few stocks as
strong in bees as at this time last year — should season hold
until July as at present may be as good as 1861 that
followed wet July this year — 1862 very disastrous in general
1863 great honey year — Late in fall season good — Now the
importance of feeding being more than usual cause not had years
were almost to get up with previous years — Neither
last spring much dead bees collected to stocks if
any at all blossoms fell off — Bees working almost
not at all as much as they could not — honey season very
important — 14th Cold wet — queens hatching — sounding cells with
eggs the last few cells and next days — 15th Cleared off — bees
entirely active — very windy — spring lost — since 1st of May
weather unusually windy — but yet bees do wonders —

Impatient When queen removed and bees left to rear
what queen cells — far better to cut a slot
in comb where brood of proper age then to let them
build on surface of comb — get much better queen
cells — [ ] If stock strong and eggs near uprights
cut away a narrow slice of comb near uprights — Bees
will at once begin their queen cells in these places — To
get many queen cells — give fresh brood with slots cut after
bees start ready to seal over first lot — a third lot easily
secured — the 1st removed or the others sealed will — (16th) 50° 60°
Sellsth — cold, cloudy very windy — bees imbed some in P.M. — (17th) 40°
Mon — still — frost in two places — On Saturday emptied about
[illegible] gallons of apple blossom honey — very clear, very odorous —
Looks as before sealed over by bees — does not require a very
warm room — Now can empty cells with eggs one may have
without disturbing them — This Spring has been very windy —
frost out not such heavy rains as last Spring
[illegible] and grain more [illegible] — apple blossom
[illegible] last Spring — [illegible] Cotter — Have already
got more surplus emptied, than all surplus in boxes last
year — emptied none last year (17th) 40° 68° N.W. — still cold and
cloudy but not so windy — bees here get considerable honey — apple
trees nearly all out of blossom — Emptied many comb — the
cold [illegible] keeping back locusts excellent for bees — In
[illegible] where queen was caged Saturday — queen released and
yet [illegible] has removed for sale — Never marked sign of [illegible]
[illegible], although had a pint stolen queen given them and not [illegible]
them to secure queen impregnation — Use a small unventilated
room with single sliding window near ceiling — keep quiet
w strong nucleus with abundance of choice drones — make them

accustomed to fly about with window closed - and feed
flies - Nucleus may be set at first near window on shelf
and gradually removed and set on floor in one corner of
whole room - this will see flying of drones in room - When
all ready - Put nucleus with queen just right day five
days old and confined with queen. Include bee bread into the
opposite corner. On a shelf half way up to ceiling - take a
comb with queen on it and lay against nucleus bars -
the drones leave nurse flesh - easy to make them fly at
say 2 P.M. close window - bottle may be used as usual
for flying in whole room - may be well to leave the drone
nucleus without a queen - If found to answer the frame with
queen may be laid near drone nucleus and the nucleus
at once made to place - or bee entrance of nucleus
left open & stand to prevent loss of bees. Plan may
easily modified to suit circumstances - easy to receive
the queen if sent on - after impregnation can be flown
whole to answer? Would bees - so that we may hear
in an officer's diary and keep down dress heading. It
may be that from a fire might drive impregnated in the day
or day before at 12 M. drone time - Would queen feel to
strange? Would they fly to window and perish in trying to
get out? Would bees allow, to collect them on window?
Would bees may be detained under? (18.) 44°..64° - A. M.
most of the day cool and cloudy - bees wonderfully active for the night
they clean - some of the last month - [illegible] this time
last year; the entering - stimulus, or more heavy rind
abundance of pollen (bottom better bees) causing an immense
deposit of eggs - and then the is designing queen and

by the time of comes and the bees begin to get finished if the brackets are made and the bees have the
charge and (19th) 46°. 60°. N. W. - weather colder than yesterday -
At intervals during the forenoon wind west - will be warm after
soon if weather does not change - Broke my plan of Queen & Swarm
side boxes and cold water pipe to a respect that bees are
forming (20th) 37°. 70°. Bees very active - Wind rapid South - Weather bit
cool that to cool - day - cumulus not united - (21st) 56°. 70°. S. W. - Bees active
have only in moderate supply - 2 P.M. began to rain - 9 P.M. wind
changed to N. W. - a hard rain - (22nd) 46°. 62°. Bees active at R.
Brook - nectar - first of the season - Took new average charge Queen
cells - ago - (23rd) 38°. 70°. N. W. to W. - Wonderful weather - coming to
warm to fast air - set more to charge - I think bees are less or less for
many days - feeding from 62°. 38°. 22°. Black fruit - Sand Ants
(24th) 42°. 72°. S. W. - Glorious day - Bees get just enough to keep
them up to their full height in breeding - Some years ago
after getting the Dzierzon theory and reading Quinby's book
about from Queen Bees near for queens - Some that
I imagined was poor lay - other filling egg in cells
filling when not need as a reason old and have
superseding - After getting queen from Italy and other
sections and spreading close breeding I have worked out
a strain of queens - had none last year - Those stupid
queens were the idiotic a week or ten days after
in cages - to near flood release - Made many mistakes
in getting in cages having to be burnt up with queen
stocks - Other seasons hopeless to let queen
out in the 2nd day at a time - they were destroyed
or absent in hive - If queen cells are made the
to work was less than other but at night or early

(25th) 54°. 76°. S. W — Bees very active — In ordinary seasons little dose on blossoms of wild cherry — this year bees humming — Peppermint are in blossom a little — Stocks growing heavy in hives — Two large white pine trees at g. Mr Cole's alive with bees — clustering on the expanding buds — Made yesterday and to day a number of swarms in the large hives — to be built up — Am making artificial use of all the good empty worker combs — and as soon as the Second brood hatch use all my old combs (Impossible) May not honey when too thin be hoarded by bees to the higher consistence? This is the way the bees manage it — By the heat or artificial heat it seems to me that the thin honey confined out of comb may be hoarded to the right state — if so, how the early operation to confining honey under bell secured — also in employing such honey of distributing the inserted honey (26th) 62°. 80°. S. W. Bees very active — Good Day gives abundant pasture — Swarms in the last 168 hours made at much progress in a week before. Very interesting! A large hive which in June was full of green honeycomb — lift in two clusters — Examined stock found 28 good cells — only two seemed to have hatched — that up and attended to swarms — In carrying to place part fell and bees were worn in air — Thinking it advisable to shake bees in air into stock — found fifteen 15 more queens had hatched. Before or after opening feminine swarm swarming too, they had [illegible] being, seemed only fire with the swarm — but in cage bees paid very little attention. Tiny cut out of cage of one closely clustered — put this cage away for old comb on which bees were clustered — Making off of cage — Placed green branch in the same — bees crept on this cage — put it in corner of factory — most of bees left comb to cluster on and around it — Placed a second green branching bees from cage on [illegible] bees [illegible]

state the same — would follow me about to light a cigar — one
on Miss Lold in same hand — put cigar queen in pocket — tried
to get to her — after a morning dew they clustered densely in patches
where La cigar was put — ch! My state had a blasted queen —
Reeged blasted queen! gone then their telescopes — (Miss's eldest
Miscap) — acted very badly as a quasi top stick with queen
[illegible] — rubbed with fire — quietly settled on corals — 8/9 feet
Certainly cigar near [illegible] gathered on it — but wind fan so state on
to cigar with the other queen! In reluctancy to mother stock found
the hen down on I settled frames hers [illegible] the same ex=
citement [illegible] no hands and searched for queen! Let her
[illegible]: This queen [illegible] was not to forbidden [illegible] —
[illegible] Season which it is season — (27th) 60°. 68°. Very heavy
rain during the day with flashes — Sete in P.O. — has quite active
(28) 61°. 80° — W. — Very heavy again last night with incessant flashes
and lightning — very gusty day — has not been active as some days — he's
[illegible] — a little [illegible] — [illegible] — [illegible] — [illegible] — [illegible]
[illegible] — had flown about [illegible] — (29th) 62°. 84° S.W. — Rain in the
[illegible] last night — Marks [illegible] [illegible] — [illegible] — [illegible] — [illegible]
our soldiers — Heavy shower with wind after evening — ground shaken
with locust blows — (30th) 64°. 76°. S.W. — Rain last night [illegible]
very wet — has active on locust — but very [illegible] — [illegible]
without a few hours — may be [illegible] — [illegible] —
day fair shower — clear off with wind S.W. — (31st) 68°. 72° —
Very heavy again in A.M. — Ground saturated — on four inches have
fallen the past few days — R.M. — has very active on locusts — [illegible]
[illegible] separated — Locusts have disappeared in [illegible] —
June 1st — 60°. 80°. S.W. — Hot sun makes locust hard — [illegible] is

a commencement. Hill side Locusts are unusually full of blossom - Heather
are a white mass - Bees accumulate large & the appearance of main
In many of the shrubs & trees (York) are blossomed for miles
(3rd) 60°..80° S. W. - Glorious day for bees - Locusts all in blossom
& their Hill Mist delightful for a few days - then the
many insides are lost of combs are cut & sealed over with honey
in profusion - (3rd) 58°..80° S. W. - Like yesterday late 4 P.M. - Hives
Emptied - Some hives almost full of honey - (4th) 64°..
(5th) - Locust very productive - Emptied what too heavy bees -
At sunset violent rain gust - (6th) Hazy - Much cooler to day (6th)
39°..62° - Frost in low chill places - Bees very active - Some working
very much more for it gathered - emptied by yesterday
7th) 40°..66° - Bleak day - Bees unusually active - no honey
from Locust since 4th - Two good showers - Heavy
in my ear - Emptied largely - Many queen in my hives -
8th) 44°..73° These cool nights and not very hot days just
thing for honey - Bees do better - honey thick - white clover
stopped abundant - Emptied largely of very rich consequence
Find that very few larvae are displaced by honey emptied - emptied
much sealed into regular cells - (9th) 60°..80° -
Composition Discard nearly entirely the idea of getting honey
in combs - new honey gathered will be come down full honey present
Gradually comb will be more and more of sealed honey for winter
Great accidentally empty frames between frames to get new comb
for hand - Bees having comb emptied and cleanness of store
room will not bulge out or be so apt to fill drone comb
Build up stock healthier. with full sized frames from the
comb - been a hard season. Bees in fine condition - gain three lbs
per day of surplus in this way compared with finding in combs after
taken totally building comb to suit their natural instincts

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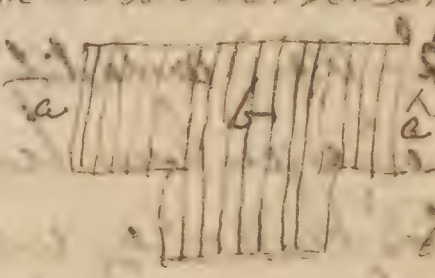
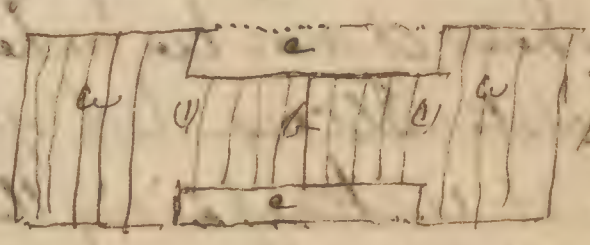
the building of the new hard combs just the thing — In this way it seems to me that we can come very near to the getting of the largest yield of new stock and surplus honey with — If after section not so good has only to feed back in a few days, by reason — as if it unfinished letter, syrup syrup — cappings all gone — how much better than other surplus is taken in boxes — If our combs are mainly built in this way all the time while our clover is yielding, comes out in a straight and good unbroken — Am I too enthusiastic in supposing that with movable combs of my construction honey extractor, Italian Bees, good location, good season, honey can be obtained at a cost by my new system at least cost than by any?

If the plan succeeds as it seems to me it must then the apiary business will be very greatly lessened — hives and all the room they require dispersed with. The hives made easy to be handled by one person — My Smoker (if force to work well) — central part of hive to be deeper frames — for bees to winter in — rear hard to — two outsides of first the depth a new stalline with first idea —



Section

a, a — for surplus to be emptied — (b) winter apartment — may be made movable to be removed when winter apartment is defective — If letter from may be thus —



If their looking down

(b) Central winter apartment with shelves and deeper frames — (a, a) summer side apartments for surplus — easily to be emptied for (a a) clear air spaces to be filled in with wire cloth — (a. a) may be made movable — At (1,1) may be detachable doors — to be used when (a, a) are detached or movable partitions to express bees to (b) — See 2(a) 19 —

(10th) 55°. 70°. At 4/20 P.M. yesterday accident just with driving gain — Splendid and quite clover — unless gust — continued emptying — So cool and windy to day that clover not secreted until near 11 A.M. Splendid bank dew in AM — shallow stream at 2 P.M. scented at by aged queen — Took six brood frames from the stock full on each side of queen with 4 Box frames in the center — Gave at one boxes for about some parts, [illegible]

Have begun in them at once! This the way to outwit the bees—
Old Stock bees burning yellow cells are not tenanted by them
easy to examine not crowded as if not left alone by Impostor
In giving new boxes let them at first only to control row
day 1/2 or 1/3 and they not feel the urge to begin—Have
bees warmer—are quieter—not so much escape of heat which
does no good. Late boxes are being filled—Resume artificial
feeding in the same way (11th) 59°..73° S.W. Breezy—great honey
day—made artificial feeding and few old stock—very few certain
boxes—(12th) 57°..77° S.W. Quiet—Flowers making bees—Made
more artificial feeding to [illegible] in boxes—17 Very Impostor
bees off honey bound when weather warm—made fully [illegible] all
stations—Very Impostor—So left large lines (crowding) heavy
with honey—Set out at 2 doz to day from with bees (Flowers stock
to and defend their crowns)—Bees not to move when replace—
(13th) 64°..72°—Rain constantly during the night—Heavy in A.M.—At noon
clear and in a few hours bees active on clover—At 3 P.M. heavy shower after—
(14th) 51° 64°—S.W.—Very windy—clouded much of the time—Spits of rain in
for a few hours at noon bees unhes [illegible] comb in boxes on the sides
to accommodate Jetters—Left off bottoms of boxes—in hope they can know
they need at work repairing the comb! The ordinary stalled stands
and by arrangement are not assured for Jetters—(15th—49°..60°—
Same nearly as yesterday—but very few bees flying—Gave on 13th a full
queen to a colony that had swarmed and when hatching queen bee destroyed cells
and finding any young queen—To day found a young queen quite dark
and the old one all right—She had not laid—(16th) 50°..74°—Great Sun day
(17th) 60°..82°—Very hot—Great Bee day—(18th) 64°..84°—(19th) 66°..84°—(20th) 72°..84°
The last few days—magnificent for bees—a wheel of white clover sweet
[illegible] show to day—glorious weather—warmest and calm (21st)
72°..84°—Honey in A.M.—clear—weather threatening wet on west—P.M. clear—

Bees glorious active — (22nd) 63° 80° Hence to cover weather very favorable for wheat — good also for bees — My Jonquil — The new style of main boxes for sealing off queens — just the thing for keeping just hatched queens until say a dozen queen cells are ready which will be in a few days — also for queen cells nearly matured. Able to keep open queen and queen cells till needed a good choice date — (23rd) 60. 80° Lovely weather — wheat almost ripe — Bees work actively in spite the rain — White clover heavy luscious — spicy — Yesterday a mile swarm — My Thirty swarm a demonstration of the true swarming fever — Hive stocked not a single queen cell in any shape — fully hard — old queen with wing clipped — plenty of inhabitants — plenty of room in boxes — some finished others filling — weather rather cool — swarmed at about 10 A.M. — No swarming bees to impart to them a swarming impulse — and no queen cells to make the old queen jealous — (24th) 54. 78° = Dry — Sun & Moon very red — Great flow of honey continues — Hives fully gathered of a very good consistence — (25th) 62. 82° = Weather very balmy as yesterday — Set in barn to day Glorious hay — By accident my honey extractor fell over one of the three arms knocked off — By this accident I got a great discovery — I can get the honey in cutting up the combs — see when honey is sufficiently ripe — the honey is at least one fifth in advance of the rain bow! Have reduced the extracting to a system — Carry the extractor to the hive to be operated on — and make it a thing to be anticipated — By a little practice I can easily the uncapped honey without disturbing the bees! A new and important discovery! — The inner sealing or large cell of honey fully ripened but the cells the top front the honey extracting the queen of swarming even in the midst of the honey harvest — Hard of swarming queens & bees from large hives — the extracting the bees to build in the upper part of the hive — the and the fronts make it impossible to

great to be easily set forth — Here to day invented a new brush for sweeping off bees from the comb to be explained a hereafter — It is simply a wire grip bent up into a hook like handle — Left and right handed — I have been off my report — as it gets between combs and upports bottoms of frames — Important — Dr James Saunders of this place suggested to me that the rapid thickening of honey in the hive was owing to the great amount of evaporating surface exposed by the combs. This feather bed. He has written. His surface could do very little towards it — Thin Locust honey was at 40 thin as sugar water when extracted and which requires much boiling to thicken it into a generous consistency is now brought by the heat the sealing state — Perhaps the water in part evades from their bodies when they are gorged with nectar — And they can let it in allow the process to go on to the sealing up or arrest it and return the thickened honey to the cells! The honey extracted by the Extractor is of the proper consistency to can or barrel — If need thicken would candy — So honey in the consistency of generous honey. If in a more gelatinous state than a near 40 it would need to be set on stove to boil — Important — Or a large scale — Have an arrangement like a hot tub — Steep to get up a great very deep heat — Receptacle for honey to be thickened outside of the Extractor — So as to receive readily the thin honey and let it run into a hand and very thick new — get changed when there might be two or more one over the other — heat of the blazing — when one days work left do the work — Drawn off warm to can be outside of Extractor — Hence an arrangement simple for thickening Honey Extracted or Honey Thickener — Important — Much time effort lies in the height of the gathering season in getting water — How easy when anything to fill an outside tank with water and fire the fire of the hot tub! Easy with a few [illegible] ! [illegible]

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to spatter water on the tops of the frames — Was gaining much more here — 26th) 74°.. 84°. Hot with passing showers — all around us — settles at sun down here — less unhealthy — Egyptian queen arrived from Mr Cary by Wait & Co — Defective two inches a line — dark colored — Gave her to be from a swarm caged — The shot swarm which came out four days ago leaving no queen cells swarmed again to day! I gave them six frames of hatching worker combs and the bees had left all but fully empty from the main stock — They laid unhatched brood — The mother had queen cells but no queen — The swarm hadn't settled the main stock — By putting the queen cages on the swarming box I succeeded in getting the queen to it.

A simple plan for thickening the honey — In the two reflecting back of my stand stand here two pans which set on the shelving posts — slide them out a little and fill — slide them out a little to empty — make them to have a slant to empty — a small plug or faucet to let the honey run out when most thickened — draw it off while hot — Plenty of the honey as got out by the extractor in a day became so thick that the honey had candied — A small glass box might perhaps be used in the day to do this — the fire heat could always be got on the cooking stove — Heat might also be got from kerosene lamp — Important — The honey extracted is not only thin but must have any moisture of flavor and poison (?) bees hushed (27th) 74°.. 88° — Gathering and entering in full play — Clover very abundant very sweet (28th) 78°.. 88° — Do (29th) 70°.. 84° — Storm hard day — Storm 4½ P.M. — closed up bee-tents — Hope for the best — Much bad weather — Important to be on hand to secure queens — By pinching queen on hanging box can detain most of the swarm until we arrive — Plan of using the stolen queen cut of the hand comb and the honey boxes in his absence — (30th) 64°.. 78° — Good showers during the day and night — Still heavy rain by the time the clover work

July 1st (1st) 67°.. 82° Heard frog & almost one dead in Corp Bees did not swarm close tents about 10 A.M. — Plan since work done the

I never saw done in the P.M. — No signs that they work on Sunday. About 6 P.M. had the largest swarm I almost ever saw — Cages queens removed in the block set hive on its place — and let bees return — Hereafter I uncage queen. They did not incline to return much — Put swarm to new place — to confine working in the swarm put on place of old stock and the stock removed with proper quantity of bees, to new place — (Important) The improved mailing box the best thing for introducing queens to colonies! Put it in warm weather — with bees and all over the frames — wetting the sponge to be sure that the bees have moisture enough — slant two a inches of the tack which rest the wire cloth to wind — wire cage — so that it can be easily rolled up a little when the is to be released! No danger of worst instances heads leaving the queen in. Only bee from mail or Express bees to be caged — Honey thickener works to a charm — easily adapted to any store — Of course a thickener could be made to be heated by kerosene lamp — (2nd) 76° .. 86° = Great honey day — Ja lieut of swarming in sections comes to most perfect — Swarms — very powerful — moisture — 3rd) 78° 88° = Very windy — hot — dry — the most trying day of the season — Bees working as much as wind and permit — Lanes Leader has been in Upson 10 days — Leader on west part of my home in Upson so that I have taken it — Two swarms one a perfect monster — Virgin queen caged when caught to carry — so beautiful to get bees to fly from — Can fly back on to the stock — remove cage with queen called a Imperfect — Doubt set down swarm did not hold or the old stock — Very often where queen called and swarm caged seemed to act as though they did not realize that they had swarmed! Towards dusk — sky darkened with rain — wind soon went down and a gentle steady rain fell — What a season — it is to be remembered! As it is much cooler — hazy like Indian Summer — Bees to

day here not used to bees – Seek after honey left in boxes around –
(5th) 58° .. – Sun rose flat red – real Indian Summer weather.
(Sunflower) In a hive having frames with bees & holding queen –
if prepared for time to remove bees – remove hive frames – and
seek the frames with queen cells & protection as much as possible –
Shall leave in a short time to send bees to Woodbury in Sylvan
in my improved mailing box – and to receive bees from Germany
by the same – Bees can in this way be easily brought from
Peru to San Francisco – Of course if queen in cage to some
one on board who would put water to the sponge once
some – but can easily be proved so as not to need this –
Have most fruit wood – May cedar? make box all wire
cloth except top and bottom – top for sponge – bottom to easily
to lay in deep grove and be nice secured in place – Have a
very light outside wire gauze to receive box – fill between wire
and box with wool – this can be kept damp – Now we have
the plan to get bees from any part of the world "Eureka"!
(6th) 59°..82 – Sun rose flat red – yesterday quite cool for sewing very
pleasy so much so that bees did not fly to Linden far from home!
Real "Indian Summer" weather – In P.M. bees worked well on clover
but not near as well as they have done – Blossoms superb clover dead
but evidently not so sweet – hope that the cool nights to follow
(& showers) may restore its sweetness – (7th) 60°. – "Blue" cool nights
splendid for oats, potatoes and grass – but so misty as yesterday – but sun rose
and set in blaze of fire – Bees got fairly to work on Linden – flow will
be so sweet & good probably to return no more this season –
Crystallized about 50 lb yesterday – thick enough without heat – but needs to be
made hot to make wholesome – Draw off as soon as hot enough to apply dressings
for gathering large number of swarming queens (saved from swarming queen cells)
these queens average much better than those raised in small colonies –

(8th) very warm — Sets in P.M. yesterday — Thermo — Emptied about one bushel lbs. yesterday — Bees very active on Linden — Much rain has fallen to day — potatoes made — Glorious for cucumbers &c (9th) Magnificent harvest day — bees very active on clover and Linden clover retains its sweetness well — Put two nearly mature Queen Cells in a pepper box laid in sun — on that day bees — one hatched out had been to grass the other — (10th) 76° .. 88° — Bees quite active on clover and Linden — Received an Egyptian Queen from Mr Cary — ~~[illegible]~~ (11th) 79° .. 88° — Bees doing well on clover and Linden — but not accumulating as fast as in the last of the season — By September 1st the White clover begins to fail in sweetness some time before the flowers fail to be palatable to bees! There are two, three days chosen in bees sleeps while there are not yet there is a very great decline in the yield of honey from this source. The Alsike clover did not remain in such good order as long as the white — Linden pretty well gone — Some few blooms, one in yard here which will on Linden but the main supply has ceased — (12th) 90° .. — Good day for bees — Honey emptied to day here the Linden flow — (13th) 74° .. 88° By September — Some stocks are much better winters than others — Would it not be well to breed from such and try the result — (14th) 78° .. 90° — Hottest day of season — In emptying in the open air bees are very troublesome — remedied in part by keeping hand covered with plaster in and hung out cloth — although to rub but do not take flesh bees succeed — Time now to stop emptying in open air — (Very September) Hotter bees weight as a rule much to advantage in boxes emptied in a manner perfectly acceptable to flesh bees — To day removed full set of boxes from (2) strong stock — (X) All but three had the bees taken out and were set in the ships — two of these three were on the outside of the main row — the other central — Now they filled the set entirely! The 18 frames almost every one full of honey well sealed — Bees evident had to carry it a long distance — the boxes of honey in bottom

How I can get honey from the Heliconiers in boxes to the box adjoining — Set the frames, have the bottoms off — say have only 1/2 inch strips wide by 3/4" thick set in as bottom about 1/8" above the uprights to nail sides or uprights to — when full set in a full bottom — place the boxes directly on the frames — or if bottom to have less than fully interconnected on 1/4" strips — so that they can only flow one — no holes in sides — unnecessary — If boxes were just one row the same except the frames being fastened on sides and rear — so attempt at least with a Wilcox to have a double tier — 15" 94" 88° — Stand hanging Bees get much cinnamon on white clover — begin to cut cotton on red clover — ||Important|| Many boxes not full quite and time not be filled — Put them on ship stock and feed the honey and tried If they store too much below easy to help other pin one to end In this way all sweet boxes could be filled in the 15 minutes honey before the honey quality comes — The Wonderful Season of 1869 — The hard freezes the latter part of Jan'y and early in Spring threatened serious damage to the wheat and barley — but little damage done — after severe freezes come warm rains causing the wheat to sucker — but may the wheat was so rank that an ordinary rose would have caused it to lodge and rust — but the wet and cold prevented it growing was so cool that it escaped without rust — Several times the weather was so hot and close (?) that a cyclone of it for days longer times have almost destroyed the crop by rust — but with our fears we gave little the weather and always to calculate a good crop until after the wheat was in the shock — The harvest season has been on the whole as favorable as can be expected for the crop — the list of needed for mow and harvest Be by extra — Lard extra — grass extra — Early Potatoes extra — Early Corn

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ready for harvesting and a splendid crop - standing up well -
Corn for which we feared most - very promising - If now we
have seasonable rains and the proper heat - a very large crop
can be secured - Smell faint odor - peaches, pears, quince, and
apples unusually promising - When have we seen such a season -
If ever be able to praise - (16th) very hot day - 92° = Bees much inclined
to rob when hives opened (17th) 94° .. 90° - A nice little shower last night -
Bees ~~working well on red clover~~ one or while - Swarming comes in bees -
(18th) fine - rain last night - good showers during the day at intervals -
no wind - nothing to lay out - Glorious weather! (19th) 66° .. 82°
Splendid weather - Bees very active on red clover - work well on white - They
are now gaining again largely in honey - Combs extracted a few days ago are
filling fast - Interesting very - In my record of one of my stocks I find
the following - June 9th = 2 queen cells begun - (only) one off for hand - 11th =
Queen not fertile enough - the bees intend to supersede her - She
might to be removed - This queen was allowed to remain and the
stock was not examined until 10th - when a beautiful large
and very fertile queen was found - (and) one of her wings clipped -
Two days later this queen was found dead on the alighting board - and
~~on the appearance of~~ and the bees allowed to remain undisturbed until
the 19th - when after examination four queen cells were found - sealed
and one unsealed - The sudden death of queen cells for so large a
stock surprised me until I found the old queen with both wings
clipped (showing that she was the queen first hatched in the spring)
This queen was hatched in 1867 - and was of good size - It was very evident
from her very slender appearance ~~that~~ and entire feebleness that she
faithfully had greatly decreased - and on examination of the hive
disclosed a meager allowance of eggs and unsealed larvae while
sealed brood & in the previous supposed queen was very large -

I account for the death of this very queen was killed by some strangers which were allowed to remain too long in a cage for the hive, at the time her wing was clipped — On carrying the old queen the bees quietly close it — Sept 19th 20th finds them state quiet on it — (In most cases these superseded queens are but little noticed when caged, and soon allowed to ~~starve~~ starve, and the queen alone — smell and feeble — On dispatching bees cages appear to be totally neglected with eggs and bees frame covered with dead matter — (20th) 69.. — 82° — Windy — Nicest — Carbolic — Sets in P.M. — grew quite cool — bees not so active — 21st — 56° .. 82° — Bees work pretty well — (22nd) 56° .. 82° — Hazy — Bees working well — comb emptied a week or two days ago — fining pretty well — (23rd) 56° .. 82° — Hazy — bees working quite well — while clover seed grows — bees show a disposition to stick to it well — Am very much pleased with the size and fertility of the bees reared from drawing queen cells — also such as have reared in fresh stock hive instead of queen — or for superseding queens — and have as far as possible got rid of those for winter — (24th) 56° .. 62° .. 84° — Hazy — (25th) 61 .. 84° — Hazy — Most fertile in the air — (26th) 64° .. 90° — Began to rain at 6 A.M. — (27th) 62 .. 88° — Hazy — Rain P.M. — (28th) 68° .. 84° — (29th) 70° .. 77° — (30th) 72 .. 80° — (31st) 68° — August 1st .. 86° — (2nd) 74° .. 86° — (3rd) 76° — (4th) 72° — (5th) 78° .. — (6th) 66° — (7th) 58° .. 73° — Fair — (8th) 58° .. 72° — (9th) 58° .. 74° — (10th) .. 72° .. 82° — (12th) 74° .. 86° .. — 14th 82° — 88 — 15th Very hot — (16th) .. 90° — Left Hive for the East on July 26th — Not been very dry since I left — Carbolic has been kept under — in the cellar but the Carbolic — and clover — Rained a little on night of 14th — Good shower to day in P.M. on after dark — Honey seed has not flowered much yet — (17th) 74 .. 84 — Bees working well on red clover — Boxes have been filled and bees collected and filled from red clover! Quality of it very choice — Have not before had a

opportunity to know certainly the quality of red clover seed — or how much injured with
the rain. Great scarcity of some stocks over others in honey gathering — the same ones that
stored it last year, do so this year — (18th) 67°, 86° — Heavy fog for Oxford —
Bees active — Very interesting day. Examined a very large stock in a 13 frame hive —
Has done extending with side boxes — Queen nearly three years old — Intended
to remove her if not already superseded — Very faithful for her age — On one comb far
from hood — almost every cell sealed honey found on one edge a royal cell
with sealed worm crowded with jelly! Comb not visited by Queen — to keep
it safe or other feelings? (19th) 70°, 86° — (20th) 72, 90 — (21st) 80°, 92° — (22nd) 76°, 92
(23rd) 76°, 92° Dark night and rain before dawn with thunder lightning in Oxford.
Very hot — Dry — Bees doing a big show on red clover clusters are great increase
or dried up — getting new from new weed — (24th) 72°, 94° — Bees work well with
new weed — Red clover entirely dried up — (25th) 73°, 95° — Deaths from sun
stroke from all parts of the country — (26th) 72, 86° — At 3 P.M. yesterday slight
thunder — North & South very heavy showers — (27th) 66°, 90° — Very drying day — too dry
now for bees to get much from iron weed — (28th) 70° — Have been in the habit
of plotting sealed queen cells in corners of combs in nuclei and in almost any
position — am suspicious that bees providing them in unusual places and pushed
one more off to get them — On the 26th set bees in proper position in
center of comb [ ] as (a) — Set one there for bees then gathered! Is it, or is it
a letter flower [a] for bees to cluster on — if with sealed cell — desired
to have it unmolested — (29th) Hot-dry (28th) Very heavy showers all around —
Some rain (29th) — Cooler — Raised [illegible] in the night — (30th) 56°, 1st
(31st) 50° — Sept 1st — 50° — (2nd) 48° — [illegible]
[illegible] — (3rd) 44° — [illegible]
[illegible] (4th) 46° — (5th) 68° [illegible]
(6th) 68°, 80° (7th) 68° — Some rain last night — Weather
[illegible] — (8th) 68°
[illegible]

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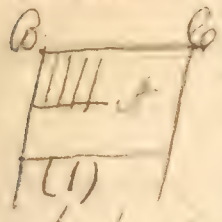
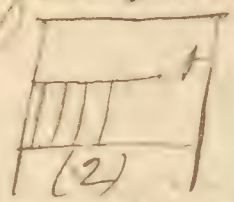
9th 88° — (10th) 76° — (11th) 78° 74° — Bees fed honey and water — Bees got a little from buckwheat — Stalks very full — usually 3 feet 8 inches long — Largest weed from 6 to 8 feet — Bees leaving usually early and late — Very little honey — Bees very active on warm days — Bees seem in very hurry — (12th) 76° 78° 18 08° 80° — (14th) 68° 80° (15th) 74° — A nice rain last night — next to none was in pond — Bees working late on buckwheat — (16th) Quite warm (17th) 80 — (18th) 86° — (19th) 82° — (20th) 88° — (21st) — Very charming little Indian summer — Fall Summer temperature day and night for the last week — (22nd) Hot — (23rd) — 84° — (24th) 86° (25th) 70° — Bees began about 8 A.M. — Ceased at 4 P.M. — not much water been for the last dry weather — a little rain into the dam — more in the pasture (26) 76° 64° — (27th) 42° — Bees fast — (28th) 36° — Heavy white frost — Cucumber and squash killed — Corn — Corn cobs ripened (29) 38° 64° — Frost — Perfectly clear and calm — Two queens imported — Saw bees more "shiny" than one — as I held comb — took wing — seemed in about an hour — saw another much larger one — There are fleets. (30th) 38° 68° — October 1st — 42° 72° = Beautiful day — change the second day 60° — Very good rain — (3rd) 38° 60° — White frost — (4th) 50° — Gusty — raw day — (5th) 56° — Cloudy — (6th) 36° — Heavy white frost — (7th) 70° — Shade day — (8th) 74° — Warm day — (9th) 60° 50° — Rain — (10th) 42° 60° — Hail — (11th) 42° 60° (12th) 32° 60° — Bees fast — Tomatoes, sweet potatoes in to be killed — (14th) 42° — (15th) 42° — The last dahlias have been killed

(May 6th 1861)
Nucleus-box — Mix empty hives are so hard to make or follow —

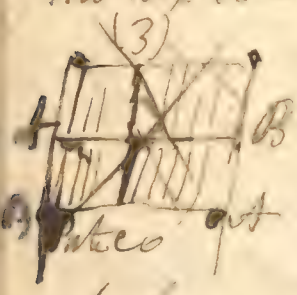


— that a strip for small frames to rest on — on front of hive — or front —



O N

bottom — it is a good ~~strip~~ to make front or back end of nucleus box — If you make to fit close crack flow pieces — side may push in — like my fly hives at Grafton — The lower tier no top or side inside tier — edge from tier to tier —



In ~~Fig (3) four nuclei are accomodated — at B — in~~ ~~thick~~ (Fig 3)

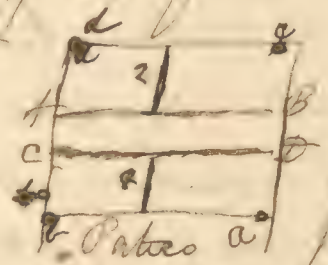
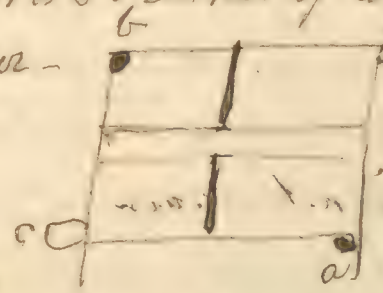


Fig 3 is for four nuclei — each to have four comb — A B, and C D are 7/8" thick and have a rabbet as in Hive No 1 — of my fly-cloth above A B or C D — just which tab corner

back — 1, 2 are feeders

come flush — A B C D — set by tag heads or nails through outside — enhances at the four corners — or —



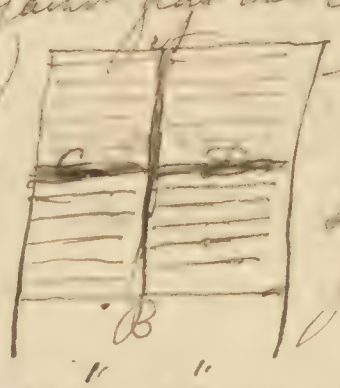
or c and d are 3/8" holes bored (filled with fly afterwards) and a small alighting board — this will be sufficient to prevent from making mistakes — all

the frames

bored frame be alike for small nuclei

lines — these small frames must fit up close against front and rear & have enough fly to the inside bottom —

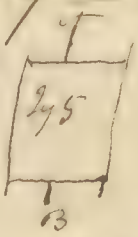
(Fig 4)



— A B tabs — are to have same tag — If four sections — 1 to left every —

7/8" — or 3/8" strip rises to make rabbets ends flush against — C D. and 1/4" rise in the needle end may have strips or wedge rises to chamber — should each have a nail R or handle

size of small frames in order to size of hive — 8.9375" — or nearly 9" — & hive at 7.5" if C D left out 12 to each nucleus — four holes — [illegible]



$18\frac{1}{8}'' - \frac{1}{4}'' = 17.875''$ 1/2 of this — 9" — size for each nucleus — or with A B (Fig 5) to divide the all the whole may be at — we can find in the table — need not to alter the size of the small frames I have used for nuclei

June 17th 1852

Nucleus-System – Use nucleus either to build upon by giving comb – with maturing young – or to stand in place of mured stock – nucleus formed from dividing up a natural swarm – or from imprisoning bees with eggs & cradles – for a few days – have not yet tried the last – 15th – If nucleus be used to build upon then wait till Queen nearly hatched – it may be built upon by hard maturing taken from other colonies. This saves moving – and does not stop work – the bees left by taking away comb – stimulate the colonies depleted – only so much comb kept them rather have of honey and give more room for hood – If set up nuclei will answer this the most certain and rapid of all methods to increase colonies – 15th – New plan – take away Queen from a strong stock temporarily – when royal cells fairly started – lift out to form nuclei – do it towards night – have a generous allowance of bees – if it will answer better still – let try lifting out comb with hood – and plenty of bees and see if in this way a nucleus can be secured –

June 25th – Take half comb – bees and Queen for a new stock – mured – put sealed Queen to the other half – try duly & place between them – June 29th –

June 29th – Two Apiaries best if very rapid multiplication of colonies is an object – Form nuclei by putting bees to hood comb – let them be bees chiefly from an old stock – full of drones – carry the nuclei to a new place – half mile distant – when Queens impregnated – use them to make other colonies.

July 2nd – Take comb containing maturing cradles with bees upon it – with eggs or sealed Queen cell or both – set up with water for a day or two – if the old bees desert – the young ones just hatched will adhere – I think I have got it – If nucleus to be formed by utterly bare bees add by 1 comb to aid in 1 matter

July 7th – Think it best not to give sealed Queen to nucleus until they have begun to rear A. Q. – fear that they destroy them – If rapid X of colonies an object the stocks relied on for building up nuclei must never be so weakened that they are not able to carry on comb building vigorously –

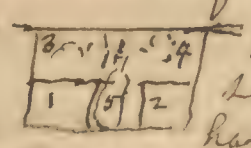
[illegible]

[illegible]

[illegible]

Feb.y 27th – 1879 – In the Fall of 1874 increasing ill health in consequence of my bees – and believing that the bee pursuit was very injurious to me, I entirely gave up all attention to bee-culture – A large part of the time I have been under the influence of my old head trouble – Last September I began to experiment again with a few stocks in my neighbors – and this winter I have resumed my interest in my favorite pursuit – hoping to be able to make the nice discoveries and improvements to which my bent of mind inclines me – I have a few colonies in chaff wind hives – The Winter has been cold and much snow has fallen – In consequence

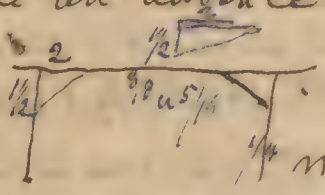
had four successive days - the mean of which was 11° below zero - lowest - 24° - highest - 2° = In a hive with imported queen found some sealed brood on two frames and eggs on a third - colony only fair - Gave one frame of flow candy - outside frame - When this examination was made neither had moderated some - but not enough to allow bees to fly more than enough to empty themselves - Next examination thereof many bees had hatched - candy much eaten - good spread of brood - most on frame next candy - bees seemed to be working on the candy nearly all the time - and it seemed as tho it was constantly stimulating them like constant feeding - Early in Feb another very severe spell - - 2° one day - zero next - Heavy snow On the 20th weather more moderate but no bees flying - Examined - very many bees hatched - good spread of sealed brood - but few larvae uncapped - and only a few eggs - showing that breeding had been suspended during the very cold spell - and the eggs and very young larvae removed - (Feb 25th) Warm - maximum 60° - bees in full flight - A large spread of eggs and larvae - and the colony in fine heart - In the apiary of a neighbour - very much stronger stock in their hives with chaff cushions and dummy boards had no brood at all - bees had no winter passages - In apiary of another neighbour - in their hives with winter passages - some brood but very little compared with mine - I have kept an old comb over mine and the bees always cluster under it - have even put honey in it - It forms the winter shell or blanket to allow them to pass from comb to comb - (26th) 7 A.M. 28° - 9 A.M. 16° - 9 P.M. 14° - Fine day wind with snow flurries - Gave stock a flat bottle of water with a cork in cork so that they could get water from it laid under the cushions - Saw dust at entrance unfrozen - and bees coming out and turning back - a few actually took wing - and were lost - cleared the entrance with saw dust - (27th) + 2° " 22° = Clear - calm - expected warmer + 10° - bees on the cork of water bottle - ! (28th) 20° " 48° = Removed cover and chaff cushion - on lifting up the carpet over the bottle a string extended to cork - Cover and quilt off some time bees retreated from bottle tho' covered with carpet - Examined combs - Bees cluster on candy - eggs and young larvae plenty - brooding hardly at all checked by very cold weather - I now form the winter shell on top of an old comb - and put carpet over the comb - hole in center of comb - Bees not at all disposed to nibble at carpet - as tho it was next to them - If food is to be given on the comb, some sticks should be used to allow bees to get at it - D. T. Wm Cook of this town thinks use the following plan to give bees water and candy - devised from my conversations with him -

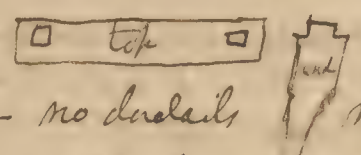


1, 2 wood to fill up frame sized board with a hole in it had a good sized hole in it

3, 4 flow candy poured in to the hole - 5 a flat bottle with good cork - so that bees can use it - If chaff cushion and bottle rest down it covered on top with wool I think it would be better - only a small slit in wool to come over hole in covering comb - when bottle set in over hole in chaff cushion that will be over the cork - This accepts without lifting cushion or disturbing bees - Honey if needed might be fed with ease in bottle feeder - Candy and water given after good - warm night - if the season is right to encourage breeding - March 1st to 5th - [illegible]

In central part of State was a portion since — 4th Believe there was no flow in that candy! 5th Bees
abundant are for candy and the bees used the bee-head! Shall examine tomorrow to see if they have
bee-head yet — The sight of the strong neighbors stock with no hood — having no winter packing or
argument one reason for bees in old beehives being usually so much stronger in early spring — they
communicate freely — Queen not much disposed to lay when she cannot freely pass from comb
comb — An old comb removed and winter packing and the comb where the main cluster
a little wider apart will remedy all this — In lieu of the new brood chief hives to which
old colonies transferred find bees well up to the thin central partition — To get the winter
allow chamber in brood hive — shortly had 3/8" strips to the uprights of frames of bed comb — let the upper
strip or tops of frame be kept about 1/4" from the partition — then Lay carpet over the tops
of all the frames — With chaff cushions bound confine bees to the proper space — Hole in cushion
for bottle water or liquid feeder made so as to come right for the holes in the covering comb —
Good care taken in preparing bees for winter to have plenty of honey in combs near the partition
board of the two hives — I believe in this way bees will winter in the open air for all general purposes
than in any other way — March 4th 34°..46° — Bees not flying — Breeding about ceased
suspended in brood hive — only a few larva — bee-bread all gone — Joshua tests — there no flow in
the candy — I give comb with some bee-bread — 5th 36°.. 50° — Dense fog — then beautiful calm day —
put flow on shaw on floating boxes — put comb to attract bees — some bees — then heavy
work — 6th 50°..60° — Heavy rain in A.M. — P.M. — cloudy — bees working on flow in the boxes
covered — lid open enough to admit flow — Tried hive had much flow in cells — I give
them plenty of bee-bread in an shallow chamber frame — Bees must moisten flow with
honey to pack on legs — In natural pollen it is damp enough to pack — only get honey from
upon to pack — It is at this the reason they cease to work on flow when natural pollen is used!
To day made an advance on my frame —





When driven together with
bottom — corners nailed — no dovetails needed! very strong frame —
The uprights may be only 1/4" scant thick — as the corners give strength just where
it is needed — bottom rail may be used — would not be wanted except when used in upper story —
flow — 7th 45°..50° — Rainy a little at A.M. P.M. —
3d a little comb from the flow — 8th 70° — Summer like — bees work on stimulated
by flow — 9th 50°..72° — Occasional showers — wheat, barley — clover looking unusually well — peaches gone —
10th 50°..74° — Bees work on red maple — and Aiton vite — Thunder showers — 9 P.M. — Tremendous shower — heavy thunder

19th 40°.. 50° – Bees work but little – 12th – 28°.. 50° = Bees work but little – Examined Dr. al hive bees have made a good spread of brood for their numbers – There was flour in Root's candy – but not enough could be got – & could not soften and assimilate enough to feed the spread of brood last before this last started – so that when all the pollen was used up – had to perish! If this hive had not had in winter it would now be very weak in bees – Bees had begun to build comb in the space where they have used up flour –
18th – Pleasant – about [illegible] – Do – ~~16th Cold~~ – 15th 16°.. 34° very cold morning
Dr. McCord finds bees work more on his candy with much flour in it – when he thinks it is little or none with Cup feed – Bees keep quite a patch out – and do not chip grooving on the Bottom B. but in Root's Candy. Reason why bees found with breeding suspended about 4th – was because could not get flour enough – (16th) 16°.. 30° – 2½ P.M. began to snow – [illegible] fast indoors fell – 28° = (17th) 22°.. 30° – Clear – Bees in trial hive have not taken much flour bottle – Examined carefully – and scarcely two combs not sealed to consider flour more –
Breeding not interrupted by last cold spell – that is no eggs or larvæ eaten up – showing that the trouble before was want of pollen – Examined Dr. [illegible] where they have made good progress on the candy with much flour – Breeding [illegible] (18th) 8°.. 28° – Close examination shows a little more progress in eggs – of course breeding not advancing so rapidly as if it had been warmer – but no going back – It is impossible to estimate the great loss from suspension of breeding and loss of eggs and larvæ when pollen supplies give out – so bees have been hatching for some time – Read in Bee Journal of "Horticultural Journal (London) March 6th – Todd's experiments with eggs and milk food in Algeria – In Sec. last – and [illegible] – Mr Raitt (Scotch) was a little before me in noticing untoward breeding from flour candy – The idea that candy is a constant stimulus to breeding in a warm hive in cold weather even if it has not flour enough in that the most we pollen is [illegible] – 19th – 12°.. 20° – Cold – 20th Flood of rain last night – 22 – Bees fly a very little – 23rd Very tender – 24th – Bees worked heavily on pollen (25th) 28°.. 4[illegible] – Examined trial hive and Mr McCord's – Bees in both have gone on breeding – In more nearly hatching eggs and larvæ in all stages – Gave candy with more flour in it – Mr McCord says his bees have no gay larvæ – 307
Candy feed last – when bees have too much pollen – Candy feed when bees show signs of dysentery – to keep bees at home when no honey and they get lost in other [illegible]

9 Have been to Dayton since 21st – Mr Perin's bees have done very nice on flour candy – Got for him a good
10 plan for getting guide strip in saw kerf made in strips from wh. combs are cut – This
seems to put finishing touch upon my improved frame – as it enables us to make frame lighter
11 and very stiff – and gives just the surface against which to fasten Foundn with wheel roller –
(26°) 42°.. 50° – Heavy rain with thunder – The examination of trial hive yesterday shows that
the bees resumed breeding as soon as pollen was supplied – hatching bees from this – In
a stock with candy on frame – bees have been in search but to replace candy eaten out! (21st to 31st)
Cool for the season – cloudy and rainy – bees fly very little – April (1st) 26°.. 44° – Cloudy mostly
with a little rain – Sun shone out P.M. but cold – and bees flew a very little (2nd) 21°.. 48° –
Some flour taken – Bees have gained very little from the maple, elm, white poplar – Severe freezing killed nearly
all of the pollen buds – Refore 10 P.M. began to rain – (3rd) 18° to 30° Set in rain – slight snow – at 4 A.M. 22° –
very windy – (4th) 22° – (5th) 22° – (6th) – Bees flew well – 7th Rainy – P.M. bees flew some – (8th) Rainy
bees flew some – 9th Cool – ~~rainy~~ some flying – very little pollen – 10th Rainy – no flying – (11th) Cool – but
little flying – (12th) 26°.. 54° – Bees very active on flour – Whenever able to fly the past week bees
have been greedy for flour – very few hung in pollen – refuse of flour in flour feeding boxes is
quite sweet – showing that they moisten with honey as they take it up! Mr Cook's bottle and flour
and sugar feeding frame a success – bees eat flour candy – also flour and sugar – Trial hive has
shown active breeding – brood in all stages – a piece of drone comb that had young drone larvæ and eggs
lost its larvæ and after a few days more eggs laid – drone comb was on the outside of main hive – this
shows a very refined instinct – queen deserted it for a long time – then bees "went back on it" because
of cold cradle weather – then queen began again – Of course not so much progress made in breeding as
if weather had been warmer – Trial hive is now very much stronger than those which were day more
than twice as strong as when experiments were begun – Ten days ago – Honey board in two parts (for
trial hive) divided confined bees to proper number of combs next partition – the fewer the better (say
two or six) which will hold the bees – over the part of hive holding bees sets a shallow box with very
thin slats laid on strips forming 1/2 or 5/8 in. shallow chamber – arranged to get in box flour candy –
it requires – enter bottle with Oke Cake wick – liquid feeder &c – all feeding of every kind to be
done without removing frames – right where heat of bees ascends – ~~cotton~~ cotton cloth to push down into the
box – when occasion for emptying combs – second part of hive takes place of wooden frame
(13th) 48°.. 64° – (14th) 54°.. 64° – Bees get a little of pollen – (15th) 48°.. 45° – cloudy, rain – (16th) 48°.. 52°
Rain – No bees flying – Dunham Rch. – new 16th – but [illegible] removed comb with

eggs of impotent queen to a colony sent me — cutting out their queen cells — queen having disappeared in transport — Bees from dark imported queen very gentle — both for color and stings — queen bees [illegible] in perfection — Set aside this colony until here divided down to a mere nucleus.

This evening got Mr. F. Dunham's letter about giving flour in the combs (rolled in) to queenless colonies when getting them into winter quarters — Is Important? May not flour dry sugar be safely fed to bees in September especially in regions where pollen is scarce — so as to be stored in cells — sealed over? It would be desirable centrally about where it would be needed either for breeding early or for the ~~young~~ old bees — While bees can live on honey alone, may not pollen lessen the amount of honey needed and make them more vigorous? I believe that its full importance in the economy of bee life has been greatly overlooked (17-) 34°.. Strong very rare c. h. E —

Journal for 1861 — June 29 — Taken with old trouble after last round — Recovered about October 1st — Unable to superintend or attend to anything — [illegible] with it cannot stand long — For weeks up to now the doctor seems to have [illegible] many years and then giving it up for some years [illegible] some or for old [illegible] [illegible] some time [illegible] for his system gradually to get accustomed to the poison — [illegible] for many years I have accustomed to their poison — Giving up [illegible] some years when I commenced [illegible] that for [illegible] in my system I could no longer safely handle bees — [illegible] way to protect myself from the poison — indeed it remains to be seen whether I shall by passing I shall [illegible] to work with them for a week — and what results — whether the poison lasting [illegible] I have hope that it will not be [illegible] to be [illegible] I will [illegible] so soon [illegible] experiments — June 17 visited J. S. Rich a day or two [illegible] with [illegible] poison [illegible] and many [illegible] with [illegible] poison [illegible] and [illegible] the combat [illegible] as easily as black bees! [illegible]

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[illegible] for McNealy — Mr King. Kramer, Dent, Hamlin
[illegible] — Then are the notes I took of our interview — Am 60 years old
[illegible] bees — am very fond of them — have had to do with the
[illegible] of my own, say or seven years.
[illegible] bees — In 1879 had a queen which died
[illegible] — [illegible] further experiments — I lifted
up two frames of bees and bees with 2nd story of Langstroth hive
[illegible] inch honey board between the stories.
The honey board to let the old workers return to parent stock
[illegible] the top of a 3rd story with thin white muslin — In three
days time Mr a queen cell which hatched in about 8 days
[illegible] hatched down into the muslin, the bees bore down
the queen cells — Three days after the queen hatched left an empty
[illegible] honeycomb to allow the bees to make the honey
[illegible] colonies formed in this way the bees [illegible]
[illegible] Mr Hamlin in the third story the flying bees [illegible]
[illegible] the queen [illegible] found the entrance of their [illegible]
did not say thought it a failure and killed one of the queens — when
were killed the others but for the interposition of a stranger the
[illegible] left alive queens — & an Mr Cram came with eggs and next day they
began to lay — Kept the nucleus on a full stock for the sake of room
[illegible] the nucleus was made — [illegible] before [illegible]
[illegible] They have many more [illegible]
went for G. S. Hill & C. J. Smith — Hill came — and found the queen laying
for the [illegible] of nuclei and [illegible] of the queen — The nuclei which what [illegible]
[illegible] about 1 lb — [illegible] been hatched in [illegible]
years bees and comes with some wood stuff intended to [illegible]
They wintered well — Mr Kramer showed me the [illegible]
were — [illegible] were sisters — and the drones were from the same queen. The
[illegible] — Mr Kramer [illegible]

to confirm the last lesson he taught that with green one drove [illegible]

up their heads against glass and were then not able to hold

1 [illegible] – Frames without bottoms – [illegible] of them in the [illegible]

[illegible] – Chill them for lower story beds. Then any frame yet – have not

a number of them nearly nailed out – like upper story to see whether [illegible]

faster than down to the top of lower frames – if they do not then [illegible]

in the frame – so little wood to be kept warm – so much economy of room

for hives – and so stiff – and let less weight down on to the bottom board –

Before the corners are cut out. Brief Rev. Stock cut in [illegible] – so that 48

[illegible] to fasten fdn lets into corners before they are nailed – [illegible]

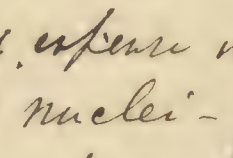
[illegible] wide corner just right for fdn to be on one side, and yet

be in center of frame – This style of frame could not be used little [illegible]

the top bar used and so much cheaper that it will be preferred.

July 9th-1852-

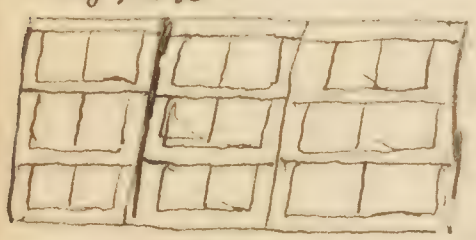
Nucleus Plan } May 15- Have a large number of nuclei formed-
Rapid increase } If a few strong stock were kept about a mile from the main
Apiary - in a tea chest box - a dozen combs with eggs of workers
all covered with bees might easily be carried by one person - these put into as
many different hives in the main Apiary - the most of the bees will adhere -
by last of May - or just before young Queens hatch - the nuclei may be strengthened
by hav one comb with maturing workers - as soon as the young Queens commence
laying - give them one or two more combs with maturing brood - they will now be able
to build new comb and will advance very rapidly - Nuclei may be formed in
any of the ways mentioned - the stock which are to build them up are never
reduced so much in bees that they cannot build comb vigorously - their energies will
be given to comb building and brood rearing - they will have but little honey and
will need to be fed - but if they have comb a small expense in feeding will
make them safe - 1st of June form another lot of nuclei - and 15th of June
another - Say that I have 20 strong colonies in spring - form 40 nuclei 15th
of May - equivalent to ~~two~~ combs with bees from each hive - 1st of June - 40 more -
the 20 first to have ~~two~~ one comb with maturing workers - this will take ~~three~~ four
combs from each hive - 15th of June 40 more - the last 40 to have ~~two~~ one comb
of maturing workers - this will take four combs from each hive - 1st of July
the last 40 to have two combs from each old hive with maturing workers -
14 combs have now been taken from each old hive - and they will not be
injured by the operation - allow 20 for failures - and the colonies have been
multiplied six fold - and in a good district and average season they will
not need much feeding - If only one half this can be done so as to get a
three or four fold increase what an impetus will be given to bee-culture -
July 19th - Let nuclei be formed say in June - and strengthened a little in July - so as
to keep colonies strong to gather honey at the right season - when buckwheat is in
flower then build them up to the required strength - (21st) If bees are not working
briskly when you wish to catch by morning - you may feed in open air until
they are flying strong -

Nucleus - To get comb for - Cut out top, side and bottom of comb strips
(May 4th 1861) to make combs for a small frame  - as soon as
bees refuse old eggs are laid - cut again - second time cut
very easy - then again be -

Nucleus Box - see No -

Observing Hive — It is found almost impossible in our cold climate to preserve bees in an observing hive — I have invented a plan by which they may be allowed to cluster in the winter so as to preserve their animal heat — If the inside of their hive be covered with flannel they may be kept warm and free from moisture so apt to breed dysentery —

Dec 17. 1861
Obsy Hive —



Here is a rough sketch of an observing hive on an entirely new plan — A series of my movable frames are inserted — about 3/8 of an inch from each other and from the sides, bottom and top of the hive — As soon as the breeding season is over these are all removed and placed together in any box just as the frames in my practical hives — and of course need no unusual protection in the cold weather — When the Spring is sufficiently advanced they are placed again in the observing hive — The only objection that I can now see to this — is that the Queen might conceal herself between the frames — but as on my plan the bees in an observing hive work in the light — and as the wid have to be on the comb a large part of the time to lay, the wid soon have all disposed — Brood comb might very easily be taken for any purpose — and such a hive wid be in many other respects most admirably adapted to the extended purpose of examination. Unite this plan with that of my open hive, and you will have very extraordinary facilities for observation — at all seasons of the year — Even if bees winter in common observing hives they are feeble in the Spring and not being able as in common hives to economize their heat to the best advantage — it will be late in the season before they become strong — My plan allows them to be clustered and increase in the usual manner until the season admits them to be put into the observing hive — I have tried the plan of giving them more room to cluster in winter but find that it does not answer — the bees drop down and are not easily able to rise again — the moisture in the hives increases their disease — No amount of protection in our climate will keep them in health a hive in winter in the open air — As the Queen keeps on the comb the wid be able to be seen easily at all times — in my hive Dec. 17. 1861 —

Nov. 25. 1851 e O

Open Hive

I have this day brought my conception of my new plan of a hive to what promises great practical results – ~~While~~ My open hive gives greatest advantages to three classes of persons. 1. The Scientific Apiarian whose great object is to investigate the habits of the bee. He has a hive where in a few minutes any comb may be examined – Mistakes hived to say nothing of the comb cannot be used without injuring the bees – and the work of ~~[illegible]~~ removing frames for inspection is tedious and difficult. The common operation hive expensive – and do very difficult hive in which to prosecute bee experiments. In my hive he may with the greatest care perform all the various experiments necessary to arrive at a more accurate knowledge of the habits of the honey bee –

2. The Practical Apiarian who works for profit to manage his bees on an improved and scientific system – finds in the use of this hive the means of making artificial swarms, securing artificial Second, supplying destitute hives with honey or brood – obtaining honey for sale in the market for immediate consumption or for in boxes or tumblers just as may be most profitable – protecting his hives against the moth – and in short of performing any operation they may be desired in the apiary.

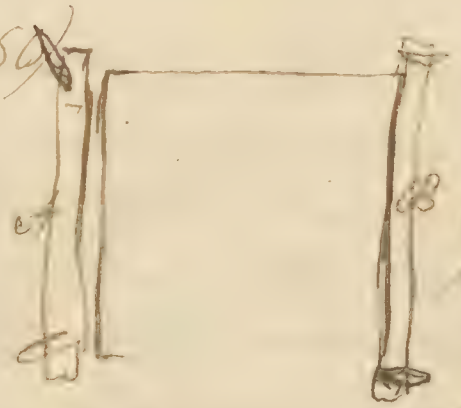
3. The Hive will suit the farmer who manages in the old fashioned way – as he can get honey at any time &c

Sep. 10th – 1852 – Where the bees can be protected from the weather and from the sun – they may be ~~hived~~ kept (perhaps only for experimental purposes) in the frames without any cover – the frames being properly suspended may when the bees are first hived be protected by a cover which in the course of a week may be removed – Of course this plan will answer only in warm weather –

Nov. 22. 1851 – The cover may be kept a few inches from the frames – in this way the bees will I think confine themselves to the frames as long as they have room –

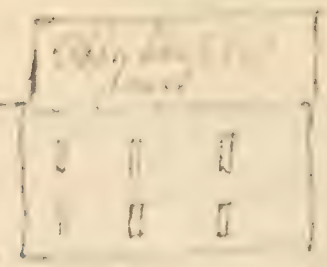
the supports for the comb might be of the very simplest construction – say four posts on to which flat and back rabbeted pieces are nailed – Now let the box have pieces of wire hooks or nails high nailed in its corners and it may be taken off and put on without injuring the bees – it might be kept off the most of the time in warm weather when the hives are under cover – such a hive for experimental purposes will be admirable – the ends may be slid out from the sides – and the hive be made more than one story high – The outside cover for warm weather might be of paste board – another cover of the same kind with nails &c will admit of packing for winter – or the paste board cover might be double with cotton between – thus very light and warm

(March 15th 1860
"Open Hive"



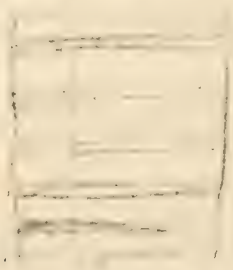
Let the frames be suspended on an iron wire rod — such hanging by Tins — to keep open at the bottom — the inside surface for suspension might be of cast iron and screw down to the honey board by hooking the frame after below — the frame on which they are hung for the shelf — to have on the surface of the hive by with like the cover & bottom (see Fig. 16 of my book) — to hold outside case on honey-board — when frames again — capt nails or pins fixed to hook it frames — one end of the cover & left open — to let cover out slide away from frames & take it — cover A. in B. so as to get the flap off — frames & to be taken from slides — inside cover of cedar, to be glass & covered by cap case left up from B. to slide frames — cover — along B. — left off to see bees underneath — Simple case with lodge as at present to hold extra case of honey boxes. Frames might have slides or lugs on top one inch wide — when frames hung from the slide board — the slide board for inside of case with frames — by hanging them so that they could go with the frames to allow the frames to be pushed close together — A clamping or locking fixture might also be used to hold all the frames together — the case below so as to allow no jostling of the bees above and to keep out the bees only remain in the case — might not extra or slides be put on the inside main case so as to give more room to board on it — The frames may be wound and held to clasp the frames together — The cover may

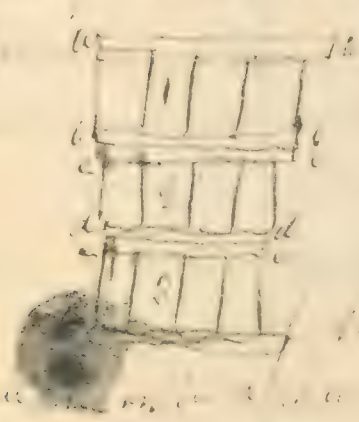
have on the same surface as the frames & slides — In frames or hive — the slides might be left off — 16th — I do not by plan of my hive is very much better than this of yours & can have — I may now a cover to cover as the cover on the upper case — then the inside slides off with honey board —



u O

March 8th. 1812 Outside Cover - after being made should be cut in two and then upper part hinged -



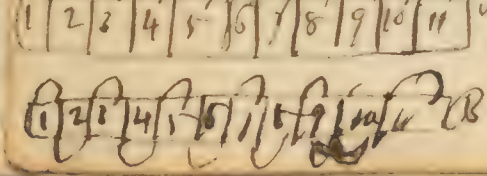


Prayer, Sincere, honest, painted in a masterly style. Shake. Hamlet.
Paradoxes. Ingenious attempt to account for the impressions frequently made by them. (Burke's Works Vol. 1. P. XXII. 2nd)
Patriotism, inculcation of not neglected in N.T. R. Hall. Vol 1. P. 206.

Patent Hives. – It cannot be expected that persons who are content to remain in almost entire ignorance of the habits of the bee will ever have much success with the improved hives – such persons are only fit to use the common box or straw hives on the old plan of killing the bees – and they will in the long run have more success on this plan than any other – all that they need to know is how to hive their bees when they swarm – and how to kill such as they mean to take up – From this system of management sure results may be obtained – As all feeble swarms are taken up in the hive the increase of the stock is discouraged – I have little doubt that in this way more honey will be obtained on the whole than is now obtained – It is more cruel to destroy bees in the winter than to kill them at once – In a word the old systems of management should be adhered to by all who are either too careless or too ignorant to adopt a new – Those who mismanage their hives do not obtain as great an increase in the number of their colonies as those who adhere to the old – If any change is recommended to those who not take the trouble to acquaint themselves with the improved systems of management – it is to keep the larger part of their colonies in non-swarming hives with ample space for storing surplus honey – and to keep some in swarming hives to increase their stock or keep it good –

Paint – White lead to resist sun – reflect heat. – inside – and under roofs might be mineral paint – first coat of hive also – Seneca oil will rather depreciate – mixed with lead – or mineral paint. –

Patent (April 27. 1852) Let Agents as far as possible be discarded – sell no right to make glass hives – Let self supporting apiaries be established – April 28. 1852 – Let pains be taken for arranging the hives – leave openings for ventilation –



Let A be spring position – when gathering season come – let it be 5. thus very strong stocks may be made for surplus honey gathering – 320

Pasturage. — It will be difficult to supply this by artificial means unless the common consent of those living in one village or neighborhood can be obtained — An Apiarian society might be formed in connection with a horticultural — and the setting out of such trees as are favorable for bees encouraged — If, following things around bees will find most abundant pasturage — Willows — Maples — (Red — ~~and~~ Sugar) Fruit trees — Tulip Poplar — White Clover — Bass Wood — Buckwheat — Lombardy Poplar
The attempt to cultivate in gardens flowers for bee-pasturage amounts to very little. If a large garden was entirely devoted to this purpose it did hardly support a single hive — With the exception of Trees which are ornamental and yet abound in honey we must rely chiefly upon the natural supplies of a country — The grand desideratum is to find a clover that like the white clover and rich in honey like the red — and like the red blossoming abundantly during most of the honey season — When this is obtained and can be cultivated to as much advantage by the farmer as the red clover — vast quantities of honey will be obtained —

* Vide page before — / April 30th 1852 — Set plank for place to double-tier between wing boards double-tier between in winter — place tier on earth — salt —
May 1st — Set slope be of tier — less than the grass —
[illegible] Stepladder — 2 pieces to have some wood nailed tacks in the corners [illegible]
[illegible] 1853 — [illegible] — 3 boxes — will be better [illegible] — the [illegible] very little
[illegible] to fasten bottom of boxes to slip they made could be [illegible] — The commencement
[illegible] — keep to put in the tacks in the pieces — the bottom boxes set on power [illegible]
[illegible] does not be come on spaces — If holes are made in bottom of boxes or central [illegible]
[illegible] Manufacturing boxes — Section 6¼" high [illegible]
[illegible] inches up top and bottom — 2nd tier 3¼ high — the two boxes to have holes in [illegible]
[illegible] 1" x 9/8" in the middle and placed [illegible]
[illegible] in two parts put on, tacks inserted and the two [illegible] — [illegible]
[illegible] on parts in hay bound — and placed tacks on top — [illegible]
[illegible] and occupy two other tacks the [illegible]
[illegible] — the two tiers are filled with [illegible] occupying to get honey

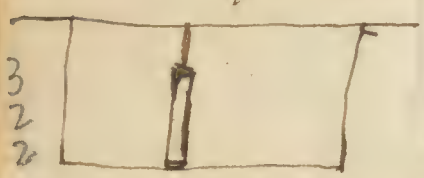
Perseverance, argued from the joy of angels over pen.t sinner. 3.

Patent – Claim feeder – claim arrangement in tea garden – claim Queen nursery –

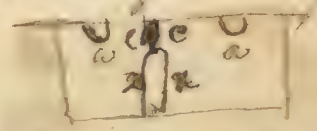
Winter Passage } To day a new plan for long narrow winter passage has occurred
Jan. 27th – 1865 } for which I am in part indebted to suggestions of Sheldon – who hung his alone and below – with [illegible] cord – the margin above and seeming below his suggestion – 1st – Get out thin shavings of pegum – or some elastic wood – 7/8" wide – cut them to proper lengths – these should be 7/8" X 3/8" X 1/4 – to nail and clinch the shavings to – ▯ – To do this quickly have a small box without top or bottom length and width of the shavings – ▯ deep enough to lay one in (or an iron bottom) then to fit a block 1/2" thick then box – so that the two 7/8" X 3/8" X 1/4 pieces can go in one at each end – then put in the other shaving – 1st – nail shavings to end pieces with small nails that will clinch – the iron – These pieces of ~~galvanized~~ any then connected iron wire which twisted round the 7/8" X 3/8" X 1/4" pieces and then over top and bottom of frame wire held the winter passage firmly in place – make the shavings 5 1/2" to 6 inches long – If these winter passages can be made (as I suppose) cheaply they will use the suspended shaving [a b a] make the bees build straight comb by beginning at a, a – instead of centrally –

It may be that the shavings can better be glued to the end pieces then nailed – It may prove better to fasten them about 3" long and making the bottom to be ~~twist~~ wired directly

Having the top wire fast to the bottom strip of the frame – If the bees would not fill it up a slit 1/2" wide will be better than 3/8" – room to set in a queen cell – If bees fill up this slit very easily to keep it clear – much more than shavings will time –



Nov. 16th – Went to day bought long slot shaving winter passage to suit me – I use hickory or some other tough shavings – lap the shaving and tack – so as to clinch – the lap to the bottom rail – then suspend with fine annealed wire twisted over the top of frame – to prevent wire from cutting through shaving use a small piece of shaving to make a double thickness at point of suspension – shaving might be suspended with a piece of fine twine – Let the length of passage be six inches – Cost of this not much more than suspended ~~circular~~ circular shaving – and it is every way better – not near so liable to become disarranged – or filled up – or injured by contracting bees – and if filled much easier to be cleaned out –

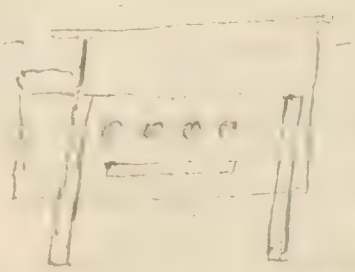


Bees will have to begin comb at a, a, and will work towards c, c, to make the edges of comb meet – They will run them down to a, a, to fasten them against shaving and make a stronger support than a good comb guide –

Pasturage

Hybrid Grass or Alsack Clover – said to have all the virtues of the red with the properties of the white – as to size of blossom – If so – a most wonderful discovery has been found –

Sem Flower – Blossoms late – why not raise it as a crop – (Water long slot showing passage) In saying that this long slot wire make corns go straight down and not have the opposite effect. I give of course only my own opinion – the bees must have the matter submitted to them before it wire do to make extensive operation – I am exceedingly desirous of getting rid of the waste and trouble of cutting on the passage – and to make provision for the many bee-keepers who cannot attend to cutting – [illegible] 6¼ high – [illegible] inch holes – [illegible] to [illegible] – These holes to come half way [illegible] – [illegible] bottom of slot to come [illegible] with bottom of [illegible] – [illegible] bottom (of box) nearest to the side [illegible] rest on a block – We have not allowed enough room [illegible] – an excellent opportunity to cut the small wood – [illegible] be about 30 inches of hedge – [illegible] – Would set side large boxes [illegible] inches [illegible] of inches high – [illegible] well [illegible] ledges of [illegible] and [illegible] – also [illegible]



[illegible] outside boxes [illegible]

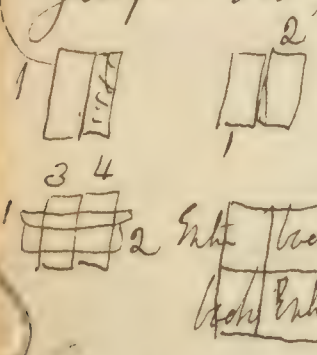
9th – Set side [illegible] box. Have bottom 7/8" thick ends and top 1/2" – Fasten down pieces or nails or long screws through the top into upright of box – one to each side – Have the ledge of here into top of box – Keep top of box well up to ledge – Front of receptacle box set in a little – long nail or dowel – entering upright from inside – holds in place fastened with end, water says so – In making small boxes make some with inch and a quarter hole in both uprights – inside row would need no slab – outside have small piece of glass on outside hole – any piece of broken glass with a little wall [illegible] to rest in the – or tacks – one hole goes against side of hive the other to see clear face – Set boxes to begin on top – Then set on sides!!! Now

See P.

Pollen — Of great importance — Very stocks cannot begin early hardly often for want of it — It might be well to change some of their frames for those of old stocks which are apt to have too much of this article — at substitute purity to be cleared —
But if a surplus of one hive be made to compensate for a deficiency of others there will be a great gain — Old stocks soon accumulate an surplus of bee bread which may be exchanged to a best advantage for the combs of new stocks which are defient in this article.

Capping of bees — does it not require pollen?

(Pile of Hives — July 1st 1854)



Begin with one — face South — Have proper roof for whole pile —
Next year set new stump where old one stood — put old one side but facing South — Next year — put new ones where old ones stood — old ones facing one east other West —
Next year put ones where old ones stood — Old ones — 1 facing East — 2 West — 3 North 4 South — When F. 2. are impregnated then facing South and West can be moved to S. and East — Next year a new pile may be begun — place 1, 2, 3, 4, 5, 6, 7, 8 red hives in the new pile in their proper places — 9, 10, 11, 12, 13, 14, 15, 16 green queens in red pile @ N 10 S — 11 E. 12 W — 13 N, 14 S. — 15 E, 16 W — After F. 2, are impregnated green are E and S — If old stocks just after swarming return the swarm in future — then may them to fruitings when F. 2 is not lost — are not weaker then — If they do not have this in future — a few of the best of swarm may be returned or sent to them — say a quart — there hive half up with of the hive — or — after If the queens are formed artificially the old ones may remain on their usual stands — and the first ones be put where the old ones are to be — and in a few days the change be made — it ought to be made first day as soon as a good number of bees are out which have marked new position and will return to it — or if delayed one day it will be best to delay it about a week — so that a great number of bees flying will stay up very much the breed queens when change is made — If done first day — no fights — If delayed — must be made to smell alike — some smell in each hive —

(See next page)

Position, as guiding the flight of bees - (June 19th 1854)

I have noticed for some time that bees are guided much more by differences of elevation than longitudinal difference in finding their way to their own hive when the hives are near together. To day I noticed bees on the Protector which had been hived for 5 days trying to enter a strait up hive of the same size, also & next to them - Putting on the empty hives & colored traps they did not notice it near so much - Set an empty hive on one hived only three days - difference in height one foot - bees took no notice of the empty hive - This condemns the Protector - and decides for the falling block -

Piling - (June 20 1854). Have a trap in the back door of piling hive - to see what bees do - they ought to be allowed to seal up cracks - If not they are suspicious that honey will be taken from them -

(Piling continued) Before turning hives round to the proper ways the bees should be allowed for a few days to enter at both ends - by my new fastening without so much disgust to them - If 12 are to be put in a pile then below it is an eight pile - four old ones are to be put on top one by each post - and four more are to be removed for new pile - unless the pile is to contain sixteen - eight the most convenient for use and unless in rare cases where room is much wanted will be better than any other number - care to move the expense of two posts 2 made - compared with advantages - ⊡ four posts - for pile - ~~14 ft~~ 2 feet high - bored up all round just distance of bee hives - screw water board to screw into them - hole bored hive was wanted - fix below with shavings -

Popery, not the creature of papacy, but its elements at work even in the apostolic age. (Spir. Despotism. P. 248.—)

Protection against extremes of heat or cold a grand desideratum — In our climate "Unique is metuenda apibus." Virgil. The cold of winter especially fatal — It often kills small swarms by preventing them from keeping up heat. It often starves bees with plenty in their hives by confining them to one foot of hive — it often destroys so many that they are left in Spring too weak to be of any value — It often causes such an amount of dampness in the hives that the combs mould and the bees are made unhealthy — A hive very simple in its construction — any ordinary box — cannot guard them against these extremes — any more than a thin house can protect human beings — The material must be very thick or the hive in some way made double — the former method too expensive or too clumsy — if ~~hives permanently double — too warm in summer~~ — An outside case wh. can be filled with saw-dust or some good non-conductor — in winter — and a box bottom filled with same — will double bees to keep warm and dry — If weather suddenly changes to warm — and is unsuitable for them to leave hive — they will hardly feel change — and may be shut in — If it is desirable that they shd feel it and learn to cleanse themselves — bottom board may be loosed and in a moment the whole hive will be pervaded by external atmosphere — Want of protection in winter greatest obstacle to successful management of bees in cold climates — The warmer and dryer that bees can be kept in winter better — if warmth is from their own natural heat — Frost on inside of windows shows what takes place in many hives — difference between a house furred out and one plastered on well illustrates difference between different kinds of hives — A stratum of confined air found to be one of very best non-conductors — In glass hives if the glass is single bees will not cluster against it in ~~warm~~ cold weather — but if double with a stratum of confined air between they prefer it — ~~and~~ I believe that I am first person who has used double glass windows or sides — and after an experience of many years I am persuaded that

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in no way can protection against extremes of cold be so conveniently and cheaply secured — If in winter saw dust or some good non conductor be placed between outside cover and glass sides of hives — and by use of my compound band bands be not attached to sides or top of hive no amount of cold will be seriously among a good season of bees — It will be economy in a long run to pay a price necessary to construct well protected hives — a poor hive will be an expensive article if it cost nothing — It will be seen that by use of my Box-bottom band — double glass sides ~~and~~ curved way — compound bars and outside cover a very extraordinary amount of protection is afforded to a hive against extremes of cold and sudden changes of temperature — and this without making a hive clumsy, heavy or very expensive — and without saw-dust — I did advise however to put saw-dust on the top of the tumble band — and in the bottom box — If a circle of cheap cotton batts be put round the hives in winter reaching a few inches above the top this may be filled with saw-dust chaff, cotton tow &c so as to give a greater amount of protection against cold — In this way if the sides of the hive were double glass — the bees did not seriously suffer from cold — and even if they were wood the saw-dust with the outside cover would give them extraordinary protection —

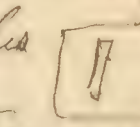
Winter Protection — The Polish hives are placed upon the ground — which is made very hard — and then covered with clean dry sand — I believe that bees when not exposed to a very great degree either of cold or heat — seem to need but little air — If they are in thin hives they must have abundance of air in the summer or else they will be greatly distressed by the internal heat — If they are kept too close in such hives in winter the comb will mould and the bees suffer from disease — But suppose that they are kept thoroughly protected — is not ventilation in and above what they produce themselves quite unnecessary? In trees they generally have such protection — and often generally their entrances are very small — In winter fill in between first with a little sand to stop all crevices between cover and hive — then fill with dry leaves — the space between cover and hive should be greatest front and rear where bees will suffer most — In Devonshire a hive they will keep in a crater — (April 24th 1872) Fill in with cotton waste — or wool waste or flax —

Punishment Future; Men are not sincere in laugh at & fear of. They laugh to banish their fears. (Withington prize Radcalism P. 147.. 9)

Protection. Let the hives have boards put against their legs - and then pile sand in a slaty direction with earth -

Protection for early hording - Hives painted white white warm in winter and cool in Summer do not suffer by feel the force of the early sun - For this reason they disappoint in early heading and swarming - My plan keeps hives in sun - admits of cover being taken off in pleasant days - paper on ends prevents sun from melting comb - frames prevent on front and rear - hives admirably ventilated up - then shut up when there is heat in them - nothing equals sun heat in developing insect life - their hives are turned up by day - but upper in cool nights -

Simplicity Honey Receptacle; we have no trouble at all in getting bees to outside boxes - Allowing for March 9. 1868 See Pe 5th engagement I am persuaded that I have bought the arrangements for supplying honey in boxes - to be completely very admirable - Of course the same arrangement will answer for boxes holding two or more combs - Front lid of receptacle box this has two clamps for handles and is used to cut holes in sides of hive - other side receptacles not in use -



Loose nails in ledges should project their heads about 1/4" above level to be easily taken out and to keep upper section of hive so high above the ledges as not to crush the bees -

10th: Operations with stove pipes and hot air furnace pipes show how slowly heated air inclined to move on flat in horizontal pipes - a very slight ascent in short pipes has great effect - Use idea perhaps in side arrangement thus = but after all so little heat down at bottom it would hardly pay - A much more reliable way would be to confine heat in boxes - thus make bottom of side receptacle 3/4" thick - lay loose and cover bottom - a saw dust - set over it a wooden bound to rest boxes on - no doubt holes 2 1/2" up in side or rear - the top in the upper side of small boxes - perhaps this hole will be good in keeping the warm air to all - In boxes on top cut nine holes will be covered with a single piece of glass stuff on - Bees thus intercommunicate in all in boxes - through holes - Holes cut in bottom of side receptacles 7/8" - shallow chamber 1/4" - so doubt the holes would help the shallow chamber and vice versa - the warm current air would tend to set up in the under shallow chamber this would reach varied by setting boxes on slant - bees having the two ends and bottom to work on

See Pe

Position — The position of the hive is a matter of much importance
A windy situation bad — the hives ought to be in a dry situation —
I prefer to have them on an elevated platform or mound of earth — ~~higher towards the~~ front — this will give them an elevation and enable the Apiarian to examine them more readily — let the mound be about one foot higher and with clean sand or gravel — a little broader than the platform of hives — planted all around and round on a plant with turf — this will make a very neat and beautiful appearance in winter put pine brush or something of the kind around to keep out cold — vegetation will tend to keep all dry — there will be no difficulty in my plan — let mignonette lemon thyme — or something beautiful be planted on the borders of the mound and it will add a little some — but more especially will be very ornamental —

April 1. 1852 On my new plan let these plants be put on the slope — some recommend N — or S. N — as the direction they shd face — if they come out too early in a day — do not do as much harm —

Supplies Honey Receptacles — Care to provide for additional collateral supplies honey receptacles — the hive
March 13th — 1868 — back ventilator — and very behind hive large box for supplies with bottom
side opening same size as ventilator to let bees come up all a
long and with bottom board of hive — If hive has pitch from rear to front bees can be made
rise freely into this box — Mr S. Brown informs me that Dr ~~Dillard~~ Dillard of Kentucky used a box of some
kind on the rear — a quite large box might be used holding 30 or more lbs — It might be arranged for
supplying in better form for feeding upper shallow chamber and middle comb over top
It might have one side made to cut out combs — Set it be say — outside measure 9 X 13 3/4 X 18
bottom 7 1/8" — top 7 1/8 ~~inches~~ 7/8 — back 7/8 — side rise to have 4 1/2" — thick this will give a capacity of about
30 lbs — Slope back rise to be at top or rear — top pressure — or 2nd middle — and be that
in smallest shape for market — to be used per box in per comb — This back arrangement may
be appended to side arrangement — or used instead as it requires no cutting into sides of hive
To induce bees to occupy this rear box more readily it may have guide comb — but better still
may be first set over main hive as a stepping and then each will legum bottom board on
and bees and one set in the rear — have an inch slot set in that equally dividing space into
box — to prevent bees from building comb into ventilator when ready to send to market fill it
with strips — ~~of course honey~~ may be used instead of slats — or a plain the use of such a middle
detached collateral for honey or slats clean, palatable — Of course small boxes might be used on
a diminished scale by and an weight — but often containing much better than for sides — see Oser 329

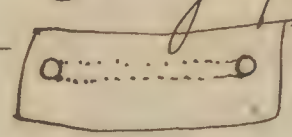
Queen Cage — July 25th 1869 — See 2 w (26) —

Q u (1)

Queen Bee. Her proper title Mother Bee. Ridiculous notions of monarchical unity. Signs in "Cobb's My Bee Book." Queen Bee surrounded by bees in an attitude of homage. "God save the Queen and all the royal family."

Motions of — When taken from the bees and usually on the hive — very slow — but she had also a very rapid, whirr-like motion. This the reason why they so seldom seen in swarming time — Usually darts at once into the hive — Use to be made of this fact — by shutting down the hive as soon as a swarm had entered, the queen generally be separated from her colony — and they would return to the home they have left. false

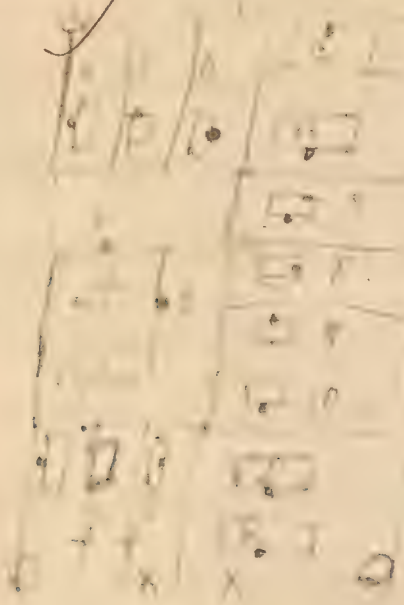
Query — Is not the common idea that more than one Queen will in no case live together in the same hive? Rev. Theophilus Pratt and T. T. of Shelburne Falls — related to me the following — A woman of nearly a member of his church — was once left at home to watch the Bees on Sunday — A swarm came out and settled — a second came forth and united with it — a third — & fourth — and a fifth. When the men returned from church they hived them altogether in one large box. In the Fall they were smothered — and it was found that four of the swarms had worked in the combs and one in the center a marked division was formed between

Simplex Honey Receptacles Continued — 2 If boxes of same size with three on top are used —
March 12th, 1878 (See 2 W 2) 3 Have receiving box to hold 12 — two rows of sixes each — Set up hives on a pretty decided slant so as to cause heated air to rise most readily to back tier of boxes — It will help, to make intercommunicating holes between uprights of boxes — and to have of course intercommunicating yellow slants under all boxes — Set the boxes be nice protected on top and on their sides by lime wash — We now get storage for 30 lbs — Our receivers previously gave less probably storage as much in three small boxes as in a large one — If by having only begun on top they will work as well in these collaterals, they decided cutting into sides of hives — Hives may be set so that these both collaterals will be pretty protected by case of hive against sun — Set hives for summer-facing S. W. — So that the O. Sun will trouble the collaterals least — I should prefer having the ends of the receiving box. mouths — to see glass-pack with wool be — It may be necessary to set a slat 1" wide on the entablature as well as receiving box — to prevent bees from building and there — It will be seen that the combs in main hive and boxes are now run from front to rear of hives and have the same slant — so that no confusion is caused to the bees by removing boxes partially filled to back collateral — I estimate that the ten frames with 23 small boxes will give a storage capacity of say 67 lbs and the 18 frames hives with 32 lbs of 30 lbs — With the plan of removing filled boxes and replacing with empty ones there will be no need at all of a double story tier of boxes — nor in many cases of the rear collaterals — In removing full boxes alone or from the rear — always aim to have empty ones as nearly central as possible — to be some filled — and to get next set to remove as near at hand as possible to save time in removing — Make only one communicating hole in small boxes — one of the three upper tiers will not intercommunicate with the others above — If surplus is taken in small boxes in the rear — slip will stand at each end — In adjusting back receiver I shall use a little melted wax to connect closely bottom, [illegible] — [illegible] great easy to the [illegible] receiver by a board [illegible] hive [illegible]
Set back boxes up at least [illegible] when they rest against [illegible] strip for back of outside row only 1 1/2" — April 1st — G. H. S. suggests that the cross strips which will be needed for supporting boxes on frames should be supported by two strips under them between combs resting on bottom board — (See 2 W-6) = July 6th — Do not like two inch holes in the bottom — nor intercommunicating holes —  Set 1/2" inch holes be bored in bottom one inch from uprights — when the bottom are sawed out with knife or cutting gauge cut out slot as shown by dotted lines — This gives more commodious space and yet not too much less to carry combs down upon the tops of frames — If half size boxes are used there may have the two inch holes in top — and the 1/2" slot in bottom — 8th — Evident that bees prefer to begin and build low down — and that even left to themselves they tend to build one comb in box — ~~How this is to be~~ Set small boxes be only 1 5/8" inches & 1 6/8" =
July 16th = Are not the boxes too high — and the half boxes too low — Compromise —

Qu-3) Make the boxes to receive glass 6X4½ - and have only one size - Lower boxes to have ½"X4" slot on bottom - or top two inch holes - Upper to have ½"X4" - Each box in New hold just - about 2 lbs - and the two sets over 70 lbs - My If more accommodated - inside of main hive - the partitions with the thin hard wood edge might be kept far enough from front to rear a little to give room for boxes! I think do not believe that such room will be needed - if so the boxes are made which can be so easily removed as soon as filled - Room enough given under all except extraordinary circumstances for all but very non-swarmers which can do at one time - This probably be better to use the back outside arrangement - the other arrangement makes the hive too unwieldy -

Guide Frames - Patterns - better name - These without pieces of comb were obtained with Italians - (See A.B.C. Bee Book. p.) I have now given 5th 1881 - reason to believe that what I mean - then these were correct - June 10th made a swarm & gave two certain full combs, between guides - rest frames with strips of foundation - full length nearly - some inch deep - some two - 13½ pound bees had accepted them without commencing out - and were busily exploring them - both out cutting two combs and gave Dunham fdn - full size - found the weight of the bees mainly on the patterns! Did not feel to give a full set of complete Dunham fdn with patterns - 15th made a swarm - 4 lbs & gave fdn (not Dunham) in old fashion in three strips - P.M. bees working out from between patterns - just between patterns centrally two D. fdn - full size - much worked on by bees of another size - appearance of D. fdn much heavier than the rest on the other hand - which looked very rough in comparison - If at last these patterns answer and enable us to get all worker perfect or without any wires - what a triumph! (Having suffered intense pain every time I come in contact with the bee poison - for instance especially so this season, I have at last come to the conclusion that my experience has been the same with an old tobacco user who after a few years abstinence attempts once at once to resume in full (over)

(2 w-4)

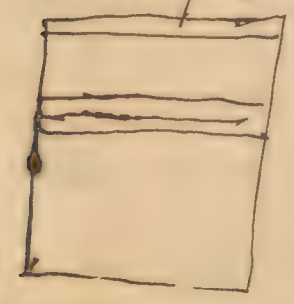


[illegible] — or a light cream color [illegible]
edge of platform has the same strips to prevent queen
from escaping from opening over boards — they may be chalked
with lachen down with lath strips — or some [illegible]
[illegible] to have queen gates 5/32 — to be fixed at about
[illegible] out to be fed water — and drones [illegible]
[illegible] — flat water [illegible]

(Jan 2 u-3) I sold all my bees in — and had
nothing to do with bees until the Spring of 1865 — when I found that the mere smell of the
poison affected me very seriously — any contact with persons handling bees, even the reading
of letters or postal cards from them produced a perfect attack — I did all that I could
to avoid all contact with the bee-poison — but found it to be next to impossible to
[illegible] — this season I have had cheerful headaches over and over again
and even the presence of fully extracted honey has brought them on — last week after
[illegible] serious consideration I resolved to try [illegible] the effect of handling bees as
[illegible] no bee hat and taking no pains to avoid being stung —
I have done this now for one full days — and have had [illegible] stings
all the time — with stings more or less every day — that a hopeful way of [illegible]
to find that my system can in a short time accumulate sheep to the poison
as it once did! that I can resume my experiments — and visit my friends without
large apiaries with my former security!) June 30th [illegible]
[illegible] with Italian bees — [illegible]
The weight of the bees being taken off from the fan and resting mainly on the
[illegible] — if I could manage to [illegible]
[illegible] — if one needs [illegible]

(2 w, 5)

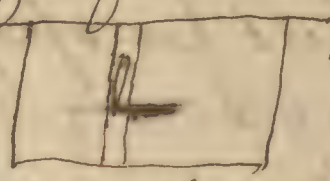
(Dw-6) Shallow Cleaner at Wire - April 9th - 1868 - I have this day devised a plan for leaving or not leaving at wire the shallow cleaner - which appears to me to be very promising - Let sides of hive be rabbeted say down depth of shallow cleaner and in 1/2 - 5/16 X 8 5/16 Set back of hive come up only to level of this rabbet - Make honey-board to shape or be set in so as to rest upon tops of frames when no shallow cleaner wanted - Have clamps of honey board alone it level enough to form shallow cleaner when turned bottom side up - projecting parts of clamps down - When no shallow cleaner - piece of cotton cloth laid between frames and honey board - prevents bees from gluing frames to honey-board - easy to pull up this from frames - old parts be thin strips of cedar rays sewed together & wire attached - Make also middle strip of honey-board to screw to clamps so as to be detached at wire - to get opening for small central beam shallow cleaner - Shallow cleaner might be got perhaps better - by laying 5/16th strips on the rabbets on sides - and same strip on back side of hive - having no projecting clamps - have pieces of nails to keep honey-board from crowding too close to part of hive - crushing bees - The honey board will then be taken off and put on carefully - To offer frames to allow great weight of honey boxes and not spring the frames - lay on the frames 1/4" hard wood strips - ends resting on rabbets of sides boxes resting on these strips - ~~If see~~ Let these be 7/8" X 1/4" - or 7/8" X 5/16" = There would answer for strips to get shallow cleaner! in the 18 7/8 X 18 1/8 = If any fear (I have none of strips of frames) two central strips might be 7/8" X 1/2 rabbeted down so as to leave the 1/2" only 1/4" wide in middle - These strips will not be so firmly glued but that in fast weather (honey harvest) they can be easily removed - If needed strips of cotton cloth can lay between these and tops of frames - Middle strips might be 1 3/16 under = and outside ones 1/2 = 1 3/16 X 2 + 1/2 X 2 = 28/8 : 7/8" X 4 = 28/8 =



2w(7)

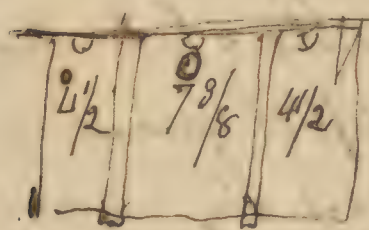
Lot (8) – Frames or Bars – Improvement on – April 16th – 1868 –

To stiffen frames without comb pieces – To make bar build comb shorter in frames or bars long from foot to head – To give good simple entire passages in frames or bars –

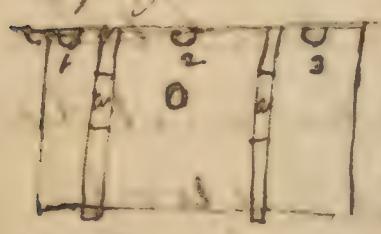


Get inch poplar or linden boards – any wood that will lean to – be sawed thin and with nail wide –

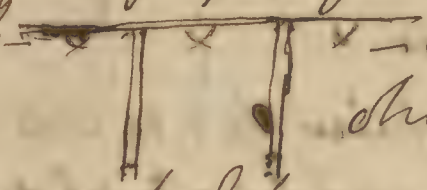
Cut into pieces 9/2 X as wide as saw will cut 1/4 inch slot (1) – length of pieces just enough to nail into ~~top~~ edge of top piece of frame and nail into ~~bottom~~ edge of bottom piece – and project 1/8th below so as to form a step to let bees mount ~~and~~ to comb without building wax ladder – but when slot is made into strips say 8/16th or 3/32nds thick – just thick enough to nail properly with fine nails – Into each frame nail centrally two of these strips (let bottom and sides of frame be inch wide same as top for this purpose) It may prove better to use four strips – these



and divide equally as – 7 3/8 centrally and 4 1/2 on sides – these having no wood to obstruct or have clusters of bees could run to and queen lay in to hard – Now if small hole for passage made in comb front might be for bees to mop cleaning – and frame generally stiff – With best arrangement frames would not cut more than comb pieces – ~~probably so~~ if as much – Now use any triangular guides – and L.S.S. wax foundation – or the latter without any triangular strips – 1 only guide in each division – If triangular guides dispensed with can make top piece of frame 1/4 thick – save expense – and get have very stiff frame – ~~So far so good~~ – Bottom frame if needed might be 3/16th thick –



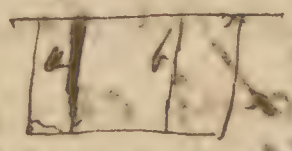
Bees must begin to build at 2 and 1 strips through at 1, and 3 – ~~Thy thin strips~~ thin frame from going crooked as in my first patent with a solid middle strip – as they approach the thin strips they must aim to carry their comb through them to meet the other comb – If they do this actually then the comb will be shallow ~~between the strips~~ so as to allow of bees to pass between them and thin strips – ~~which may as at two~~ If the entire passages are – are obstructed easy to cut out through slots as opening when centre hole is made – Would not frame be too stiff as not to be sprung by weight of honey box? If so might not strips be set a trifle top of frame so as to ~~leave~~ be rests for small boxes – or if not strips least small boxes might have small cleats for feet to make shallow chamber

2 w (9) – Of course this arrangement applicable to slats and would obviate the greatest objection to slats – Could use long ones safely – could set them down like frames – bees could easily empty them in stormy weather – The bottom when slats were used might be kept from sagging apart by fine wire nailed across – when filled with comb all right –  – Now if for any reason slats preferred may be used – It is shows slat

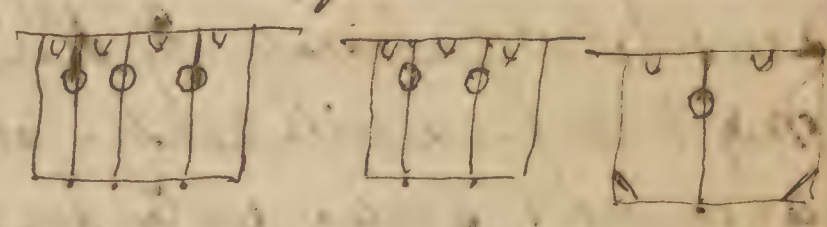
they would be cheaper than frames and would occupy less room – would be a preventative to much escape of heat above and enable bees to cluster much up against fruit or rear of hive as they naturally do in any cavity – also to keep more heat from comb – as combs would not be attached then little length – Providing say two frames in each hive on the outside – (4 in all) easy to remove them so as from above to get at slats to cut the connections. The slats would rather be a compromise between the slats and frames – and I should not be at all surprised if it proved a better arrangement – all things considered than the frames. Of course this whole idea of a removable slat probable – and if it works as well in practice as it would seem theoretically that it must – the patent would be very valuable – Slats on this plan get up by any one else would prove (so it now seems to me) fundamental contradiction with my patent and might even in the long run be taken as a claim – long so much cheaper. The whole of this plan has been the secret of wilentless thought to day – and I shall at once try both the slats and frames – and auct with the deepest interest the result. The slats not only cheaper but dispensing with thick uprights and bottom pieces will make so much less wooden surface as to be an important consideration in cold climates. Not over 1/3 as much wooden surface for slats as frames. (17th) If both of frame made 3/8" thick to provide frames fast in old style rabbet ends of frame or slat 9/16" or 7/16" or 3/32" down and so as to clear well first and rear of hive. We now have no need of slights in front and rear of uprights of frame! and no more work to rabbet them to cut off triangular guide at the ends – In making the thin pieces to the bottoms

2 cu (10) —

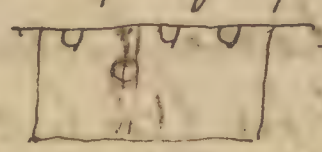
Let slats be used on two alternate sides so as to dispense with staples on sides of uprights! unless it is found there is danger in manipulating of these staples entering the faces of the combs — (21st) Will not the thin strips interfere greatly with manipulation of frames? Only 9/16" with left between their opposite faces — too little for safe manipulation — If notches cut in top and bottom rail this trouble might be avoided — this might easily and cheaply be done by laying many strips together before nailing — In this case it would be necessary to — How would it answer to have two strips instead of four — one on each side.

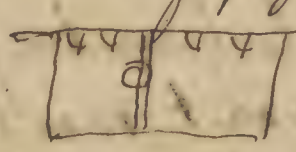


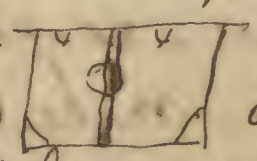
a — say facing on near side — and b — on opposite side. Thus — making like the hals? L. W. Hutchinson Cover. Then be put opposite to a one b — to notches then required — Or instead of three strips connected wire nut two fine might be used — I am on the right track but need to test the thing by the legs (24hours later)



In bottom or top of frame drive tacks not down tight — around it twist strong connected cover molecules thick — bringing it around upper rail stuff and tack against to nail head, to be fastened — Also between cover spread a little asphaltum to be used in my cover cob entire passage — Cover tack may be needed to strengthen guide mystery described by Mr. L. W. G. be used — This seems to me to obviate the objection Dr Kerr sent off for sale put in one to show how it can be done — 22nd — Make top rail of frame 1" bottom — 7/8" — notch at top 1/16" to receive the strips — use cover piece — have but one strip — make it thinner 1/16" easy to and only 3/16" wide — easy to spring cob entire passage into place — use triangular guide or not —







— the two or four L. W. G. — The idea now is to have combs edged on to these strips — to have them so thin and narrow as not to be objectionable in the center — If slot is cut in thin strips cob put with its hole to correspond and is cut so as to be sprung in between thin strips and held in position into bees have finished comb — it matters what the diameter of cover cobs the lengths being uniform and true they can always

See 2 cu (14)

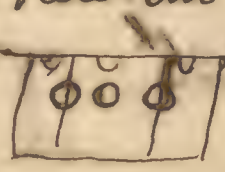
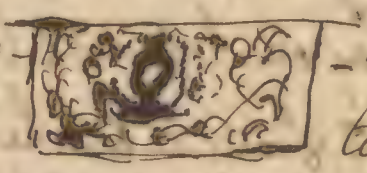
2 w(11) — To shake a swarm bees — April 16th — 1868 —
Learned to day a trick with candy — hot sponge piece of comb — and about a
dozen bees — they have been confined more than a week — carried about in
pocket — looked like bee in air bee — just given out — only one alive — candy
well gnawed — water gone — sponge dry — just as I supposed to keep water
for them to dissolve candy the difficult thing — My mind to day being in
the invention mood — at once one seeing them — thought of confining water
in cells of old comb — dipping them in melted wax to get a thin
air and water tight covering on them! Then of using wax thin pieces
for wax foundations — spreading like a plaster — sticking on — Tried this
last successfully — but with stick dipped in melted wax fastened air
tight the wax all around edges! — made a few holes in it — to let bees
see what it contained — If thin honey or syrup used — put in old comb
might dispense with candy — or use both — Evident that the same
arrangement serves water for shifting bees — inflating queens — this
cries crate as to get bees from any part of brood nest — Easy to make
wax in shape of frames — if you please about as thick as comb — It can
have holes made in it while soft on each side — larger than those cells in
diameter — Fill one side with good honey or sugar syrup not too thin —
let thin wax foundation plate be warmed — ~~have~~ or have hook with
melted wax rolled over it — so that it will stick like warm plaster —
do the same to the other side — Make a few holes to let bees know — There
may be wind and no comb at all! — Make all tight around edges with
melted wax — make wax cups to be form in frames by melted wax —
Use thin only old combs that cannot melt for bees to cluster in —
Great idea something honey tight to hold water or liquid food — covered with
thin wax to be gnawed open by bees! Solid wax frame may be used — holes
coated with varnish, wax be — (17th) Use moved to get holes larger than those cells
on both sides of wax cakes made to fit frame — holes need not be too close

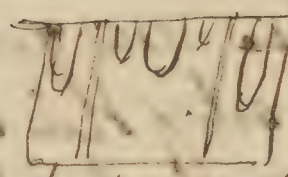
2nd (12) together – Before applying plaster take wax covering hold wax cakes forward in flames before fire so as to soften the surface enough to make the thin plaster adhere quite firmly to the surface of cake. Then fasten all around edges – Can now get bees from any part of the apiary if any one can be found to put into a properly prepared box as queen and the closed stories of combs – as the box can be sent all complete to receive the bees – It would be well to select bees just fully grown – and some just hatched – as they would not be so uneasy when confined – not being disposed to fly out and finding nothing about it – It may be well to select this thing here and in Prussia – 17th Put up bees in small box with candy and sealed entrance – 21st Bees very lively – To get in bees to best advantage shake them in entrance – then select bees of the right age – mostly such as have not flown out of hive – generally August to shake before hive and selecting to put in entrance –

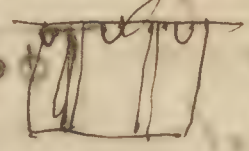
May 25th 1869 – Easy to fasten old piece of chase comb in the slot – as Alley fasters sponge – or if sponge used soak the lower part of box holding sponge so that the sponge be saturated then sponge can retain water much longer – Sponge best if it will work –

2u(43)

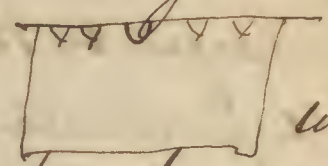
See Lmo.

2 to (14) This is what I have been aiming at for years — I am now some in doubt whether to have two sets of thin strips and two cels or only one — but inclined to two  — Evident that same arrangement applies to slats — Easy to set in cem cel centrally by cutting a hole for it — cut the hole large so that bees can pass around it and with soft wax hold it in place till bees fasten all tight! This directs all operations — and the hole in the cel being small no trouble in fitting up as in stencing  — that lines above and below cel represent pieces of soft wax to hold cel fast in hole into bees build up to it — These cels must be cut to lengths with a circular saw — and the pith bored out the whole length in the same way — Thousands thus prepared at a trifling expense — Claim in Patent — To make wider passages — shorter combs — shallow frames — Cels as material — thin slotted strips as the way — Where shoulder is used to let in strip on upper part of frame helps to stiffen and no need of corner pieces — where L. W. G. used no need of triangular guides — (2nd) To get in cels passage after comb is built cut out a square hole — thus — — This directs all operations — From looking at the comb building in one of the new styles of frame — I prefer to use fine L. W. G. — The two in center space on each side of middle one put nearer to the thin strips — thin strips — 1/2 X 1/16" with 1/4" slot — My son G. H. L. suggests to remove these strips after the combs are completed — If they are to be removed — make them with notches such as strips used for fastening in combs — and use small wedges or strips which can be cut to hold together — no hole in them needed for center passage — To release of cels take board — bore through it at a proper intervals with 3/8" bit — (by power?) slot into sections take out in thin cross cut into center passages — — To confine these comb by bees spring them between thin strips — might be bended with melted wax — but hardly needed — Much easier to make them thinner of cel — By removing the uprights thin strips — more cost another gained and the section of wood removed — From a careful examination of Cook's circular in one of the frames they seem to contain as much as those they have

(15) cutting in three small frames —  It has now the appearance of being just the thing: needed to get the posts

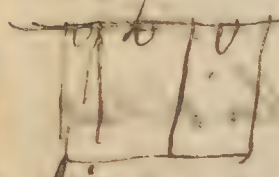
(25th)  Have only

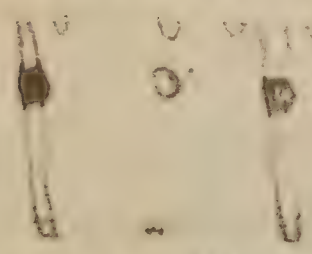
cents in long frames — and good to be pressed — three W.G. frames make space enough for the six edges — If thin strips are not used should prefer five slates — joining

 where

to confine the cents is built the thin strips — at each end. They lay on top and bottom of frame with melted wax — top of frame being 1" and bottom 7/8th — cut water proof so that the cents stick at about the proper height — the has now the simple thing "Simplicitas sigillum veritatis" —

(May 18th 1869) — Why not make strips just to spring in and hold

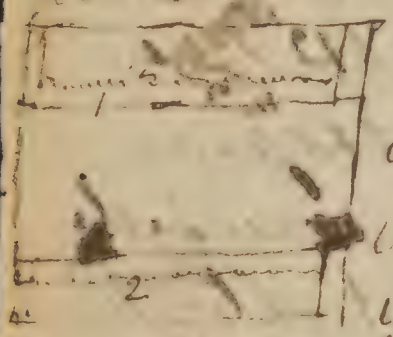
 — these were guides — strips to be removed as soon as the cents are fast down enough — might be cut out of time.



Hive for cold winter regions —

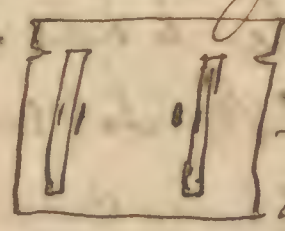
2nd (16) — May 15 1869 — South of Ohio River and Potomac
present form of hive probably best — Taller hive say 15 inches
high — may be better farther south — Would make stand
a hive to receive shallow honey boxes on the sides —
(19th) Plan of hive for cold winters — Front part to rear say 12" in
the clear — depth say 15 inches in the clear — from side to side
say 14 or 18 inches for frames — 10 or 13 = and two inches more for mouse
in rear side = center posts to nail hard wood frame slightly to-
ward front passage further as in glass hive — and rear passage frame
extended inside front and rear walls of hive to allow mouse
mouse — outside of hive front and rear hard wood stiffeners one
inch deep half to cut edge on top for honey board — Between
outside and inside front and rear walls of hive room and ft
for bees = For winter use say 8 or 9 frames — moving the inner sides
to rear to the center — and filling space with dry chaff for
non conductor of heat — also fill front and rear ends of bees
with same — top of hive white clean for bees (about 12" square
and with water tight — be so as to retain heat and prevent
escape of moisture — to delay increase in Spring move inner sides
back to get room for more frames — may be taken out altogether
for Spring — remove front and rear mouse
walls and set forward to 1/4 of upright of frames — hive
in two one before the other — The Spring combs are kept in the
main hive — by this two tiers of boxes may also be used
on one side — make tight top stay just high enough to
receive a set of boxes (say two) and taken off 1/2 the height
of hive side frames — It will be seen that this is a
combination of glass hive and 1868 style of hive — better 345
than in winter and not in summer frames admirably

2 w (17) easy to handle — these admirable for carting lees — and
Gentlemen brewers just where cement filled — and any deviation
in lengths of them at variance having arised as seasoned and bent or
warped. — When dest and new lees replace a mantle shape
and in the left lees enforce the need so that they cannot get
to the left of line above or at side of the lodes — It seems
to me that one thus secure a shape single here — If desired
one or both of inner sides may be left in to be removed and get
room to take out first comb. Whether use sides with
chamfers and to mine as frames on hand work some suffices
left up to an edge on top for heavy board — bended on sides
in place of old fulling holes mantle dens — Kept clear 3/8" for
[illegible] band — ship board against them or lees in lees — If you
have lees closed with one the advantages of little frames
the combs in such a line kept straight which easier done with long
hammers —

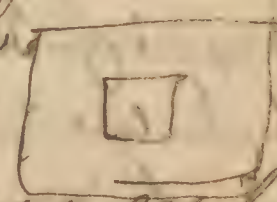


(1,1,) are hard wood frame suffices. (2,2) are hard wood
heavy board suffices let in 1" deep into posts (20) Lets mantle
divides be heavy like frames — Kept at some distance from
walls of fire — For winter may have upright lees or cases fitted
under cellar wall work a valve — That and rear mantle inside
walls may face (where they come off for to the cellar or bin) work
[illegible] and be stored up close against the frame. This accomplishes
[illegible] — [illegible] to place to fix up to — If posts are cut
in the thickness of the upright say 1/4" by 1" [illegible] 2 or 3" lees will be able to have room cement
comb without winter passages — or an inch or two of the [illegible] frame may be
so angled that the lees can hand in a corner slot — While lees
[illegible] with worker not alone — I have the corner walls! In offering which exclusive
[illegible] not the front and rear walls — Better to cut slot out of frames to
2" of top and bottom of upright so as to have a little wooden spike — but out with a com-
[illegible] saw —

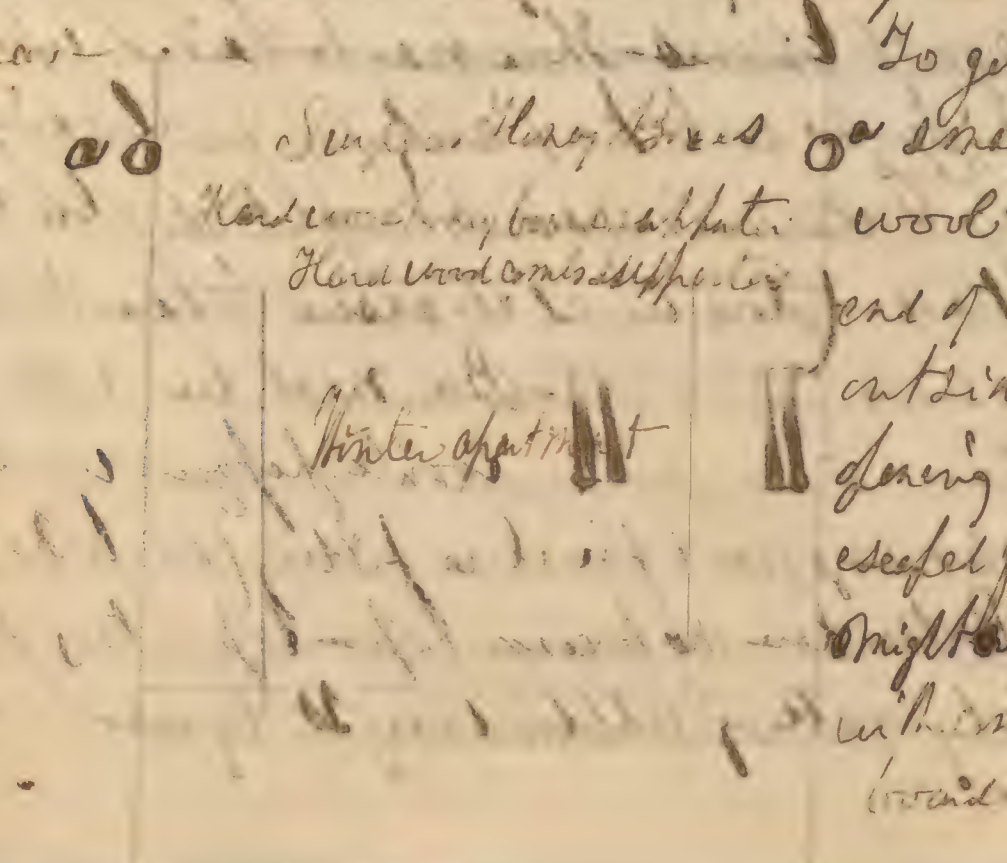
Use frames covered with old woolen cloth with woolen rags or wool where combs would be instead of dividers = warm - cheaper - Let mantle inside part and on walls be suspended on rabbet strips nailed against sides of hive - or rather be made to run in rabbet strips - notched



Leaved from opposite sides like mantle clerk of filing frames - be closed by a mantle strip - may be left 2" from bottom to left 2½" below hive. wooden frame supporters and closed also with strip - Set woolen cushions be put on with beetheal carpet tacks - cushions to be removed when weather warm - put close to uprights for winter moved out when frames to be examined. Make upper mat or cushion of old woolen quilt filled in with loose wool - and quilted = If thought desirable might have a



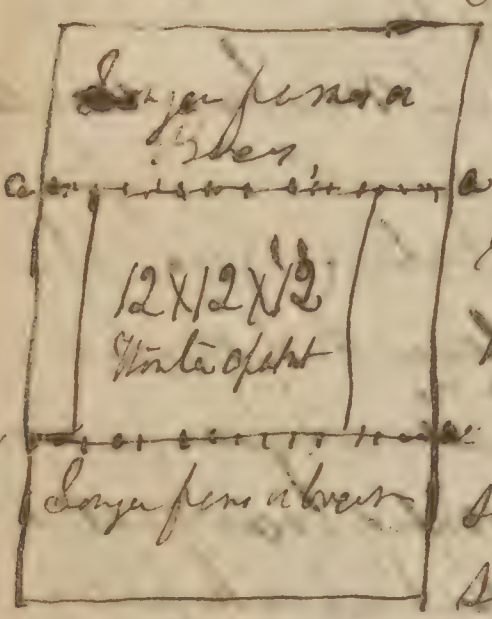
small mantle center to give easy find be without removing mat this to crowd in - Have woolen mats or pillows - cushions - easily put on, taken off and stored in box like seat tail - only cost one fort a piece - Are you have surplus against which this line could not endorse - though which of lot it would exist - [illegible] - Let me know from known bees in [illegible] leds (1) over the clamps to prevent injury to combs as handles - Inside dimensions of bee chamber 15 x 18 x 12 = 15" deep - 18" from side to side - 12" from front to rear.



To get view of glass ends of boxes make small holes 1½ - Stuff up with flax or wool - This give a view from end to end of hives & small bees like entry of outside are sealed home to remove - By fencing one of these apples which have escaped from hard chamber we get out - Might not these holes made as to disperse in [illegible] bounds - but yet such a [illegible] very useful -

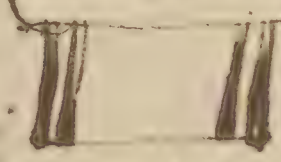
(22nd) It will be best to make top section high enough to receive one set of boxes on top of hive of same height as those below — so trouble in getting queens three tiers of 7 boxes each — 21 — below 20 boxes = if some of boxes 2.50 inches & 2.75" wide — can get 24 boxes below — Better to have all boxes uniform make the hive 19" from side to side — to hold 14 frames or 13 with one divider — Now we get 24 boxes below (24th) Set curve posts be slotted at the top on both sides and suffeters may be made at (a) — and

the honey board suffeters be put in the notches — Marks — (a.a) are thick marked to show to fill in the notches — make these suffeters of 1/2" pine tapered up to a sharp edge — make mortise post and rear of 7/8" stuff = See Journal June 9th 1869 — (12th) The hive of the future to get honey in boxes or by emptying — to get more depth for winter in all climates — time yet to be able to use interchangeably any size of frame already used in apiary — to get better winter protection — &c &c



Dotted lines a,a,a,a — may be the hive slotted angularly in my wide top frames — by two narrow strips laid on corner of stone in the back yard — with bevel on them and clamped together — left open at first and rear apartments may be diminished so as to receive the old style of Heddon frames — not used when boxes are to be put in — Easy to arrange so as to get these strips on till all except top ones — These may be raised up say one inch higher so as to keep only up for extra winter depth.

To winter hives in cellar with cool air on bags of oats — Long gables be put up close to bees — have a frame of frames slotted — (How would it answer to have them 1 1/4" wide and nailed with finishing nails



— Bees must lie up against wood — and have admittance winter pepper — would not seem to stiffen — Claim such an arrangement for hive fitting (on lids) frames, as well as present at [illegible] Better have no brace top — top story the only say 3" high — Top bars got by getting additional strips 1" by and the top frames as in my old hives —

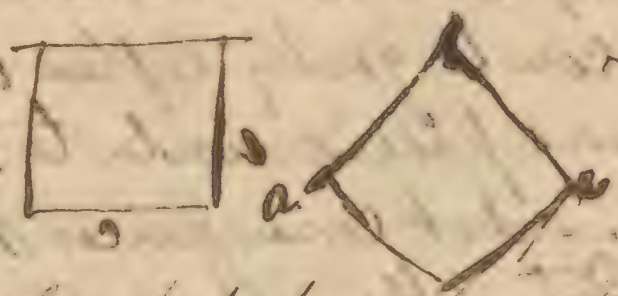
3rd

2 (20)

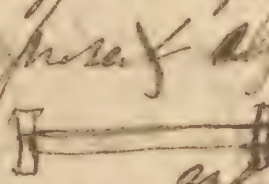
Case 14" = The lower slatted foot and rear partition might be nailed together so as to be each one piece — held in place by a strip between them and corner pieces — The upper strip (hard wood) let down into a groove in sides of hive — so arranged as to be easily raised upright for winter — This gives all the command needed — Give about room for five frames in front and rear of nests —

15" = Set grooves in sides of hive just deep enough to let hard wood strips down to proper places — Let them have holes [o] so that with a hook they can gently lifted up say an inch and wedged with a piece of wire placed under to keep them up to proper height in winter. — Set corner pieces not come out so as to catch those strips — say 1/2" from them — front and rear mouse slatted partitions may rest on wide side strips — small strips let down between them and corner pieces in holes for them in place — There no back ventilation — slatted passage under floor enables bees to stay there with it — Have entrance cover (also back one) in which bees rest mouse — as in glass hive for examination. May have holes letting bees into boxes also as well as front and rear holes in boxes admitting bees front and rear. Front entrance in winter should have wire screen to keep out mice — (I put down here just as the thing unfolds — which as I would talk it out) Set corner blocks so down to floor of hive — have shoulders as high as hard wood frame supports — so that the uprights in their grooves rest against these shoulders and are thus made very much stiffer — space below shoulders the place for mouse partitions which need not be slatted should be only 1/16" or 3/8" thick with 1/2" clamping pieces on their outsides to serve as handles when first in place in corner blocks under the shoulders — may be left in place to keep out mice. — Where there be any need of these slatted partitions for the upper part of the shoulders of the frame may be say 1/2 or 5/8" and the cords in the front and rear upper parts would then come so close to the uprights in the center upper that the bees would not build between them and cords — Boxes now would set up close against uprights — Winter cushions 3.99

wood or window rays might be on patterns — Or perhaps better state —
Let corner pieces be kept down so low that tops of posts ~~[illegible]~~
on the side apartments would come say 1/4" below projecting the axis
of posts in central apartments so that the posts present certain ones
could be slid under projecting shoulders which they may be kept off the
floor and consequent injury — The side posts might be chiselled low enough to
get with proper thickness of floor board under them the right height —
Here 12x12 posts not so convenient to procure — but may be
hewed down to the right size — ~~[illegible]~~ to be grooved
on the fingers — eyes and heads



then all right.

16th — If desired to get posts inside apartments of same weight as in main
house — easily effected by keeping corner posts as thick they are kept higher up —
Let entrance space be 7/8" deep — thickness of the covering board 7/8" — this will be
managed to get posts inside apartments to come close up to upright to
gives us the 2" we need to make height right for an inch of depth of hinge
Use in preference a long strap 7/8" thick with shoulder thus  when
desired to give less furnishing in room neither more room. Reverse this
strap — set this strap on its longest shoulder 7/8" — When desired to keep more
out set reverse it so that there is only 1/4" hight — When in winter
spring wish to clean out house remove it and the posts may say 7/8" high
Thus summer and winter may easily done.
July 1st — If we wish to use same size posts front and rear, the corner posts
should be kept up high enough to keep the posts the level of the central
posts — The uprights of the posts may be hollowed out by boring chisel
upon a circular saw — If the posts in the central apartment front and rear
apartments are kept say 1/8 of an inch from the uprights the bar and
cluster against them will easily ~~[illegible]~~ pass from one to
another through the slots in the uprights —

2 w (22) July 19th-1869) To get frames fast and rear the same dimensions with those the contract here — Here come parts which suffice them to have a hard and sharp edge — to raise frames say 1½" 8¾" above the level of the contract frames — here no lower chamber under fast and rear — Or better — Let contract frames be say 3/4" above bottom board — a new one inch — and frames a fast and rear only 1½" above bottom board — or contract 1⅛" — Must 1⅝ — now the lift of contract side frame above the projecting ends of contract crut so as not to interfere — and they may be slid up as close to contract ones as needed — only lifting one out — slid away to give room for sending contract frame — there is now room enough under contract ones to sweep out dead bees in winter — Or could in February to shelter one or more are kept there in winter while raised so as to give support room under them — Side (fast and rear) boxes may rest on strips say 1" thick with old 3/4 cut into them — [illegible] [illegible] pieces bedded into them — (20th) Bottom of main contract here might [illegible] more use upper movable bottom like other heavy board — In summer this to rest on two strips say 7/8" thick by 7/8" wide — In winter these strips laid up so as to keep movable bottom say 1/4" above bottom board — Now we have the space below frames for clearing out dead bees — The frames inside of fast going down to 1½" to bottom of hive — Room enough to allow them to slide on their edges without as close to the upright as contract frames are may be desired without at all interfering with the projecting of frames — As a matter of experiment make by [illegible] how greedy bees are to cluster under a comb and over lots of frames — if the uprights are hollow and the comb in fast and rear come close up to them as to fill them cluster — If bees to be allowed that on back here only one comb close to uprights !!!

23) Set Mantle B.B. have 1½" strips nailed on to 7/8 x 7/8" chamfered pieces - keeping Mov. B.B. 7/8" above present B.B. Set of cat holes remain open. Make winter - Do not have one new ventilator P.B.B. so that bees can take with it and stock chock it - If entrance of hive is now left large enough (entirely by moveable strips as before desired) easy to clean off dead bees in winter from the lower space - The Mov. B.B. - may have the strips very often to let most of bees drop into lower part - Of course if bees would not build upwards in frames if bottom of frames were kept day one inch above P.B.B. - the Mov. B.B. might be dispensed with. Or If P.B.B. nailed 7/8 x 7/8 strips - to just come out to corner blocks. Set into these or laid on them (between heads) may be thin strips to keep bees from extending comb below bottom of frames - might be removed for inverting - If bees (by putting comb next to back uprights if frames) were made to build on back up a distance towards door if there were easy to keep clean out ladder at rear and clean out all refuse from front! - August (14th) Being detained in Hamilton on my way home from the East - left at Port Maitland - had made fifteen miles - Very easy to put a small covering into front side apartment and enclose there! (17th) - Set inside of hive 18 x 12 x 12 for cellar apartment -

strips 1 x 1 on ends and both down there ones for sides to receive first and rear frames same size. At c c c may be bored for surplus honey - Set hard wood cellar frames as cellar mass are to fill up space - Holes of hive (c c) will be allowed out to receive honey board. If desired there might be made a small slot up - This affords fine entry bees in open air - Bees - frames to suit frames, and cards of surplus honey (Chaff plan) may be used - Here on this plan may be made any width from right to left - so as to have more or less corner bees - Instead of hard wood strips - cast iron or metal strips may be used - If mantle B.B. be made of 1/2" stuff - may rest on nail heads - and do not afford holes for mice - Rest may 1/4" [illegible] to let bees fresh air around - 1/2" strips - 1/4" nail head - 1/4" strips of [illegible] - [illegible] - [illegible]

(23) A = ~~13/5~~ 14 X 12 X 12 will give hive holding (10) ten frames — in central apartment and when corner blocks are put in same size frames will fit in front and rear apartments = 18 X 12 X 12 will give ~~Hives~~ (18) frames and about the same room as in present two story hive. ~~B =~~ 12 X 12 X 12 will give (10) frames about size of present (13) frame hive — In second and third styles boxes may be used in corners so as to get same style of frame in all, as in central apartment — The three styles of course may be used for different sizes of colonies. Honey upper story may be used then top bars are set as in present style — ~~and~~ sections will fit up and below — It will be important to use thin — say only 3 inches high = The Bee B.B. may in winter be used to shut one tier of central apartment. Where smallest size is used may be well to have upper story of sufficient height to allow use of boxes to be put over central frames = If required before fitting up front and rear apartments with bees — bees may be made to build to clear one frame to set in front and rear — bees will build to attachment to right size of frames = Of course boxes may be used over all the frames — bottom bars boxes easily put in (Mat on hole) after filling — long cut from bee attachment with Hive Tinker knife — bees will clean out all the running honey — If smallest sized hive is used and bees need more hording and the central apartment contains the brood in side combs reserve to cover ones = Say two in each ~~Improved~~ Langstroth Hive ~~~~ No frames running across in side apartments present quite fine any but very small inclination from front to rear — upper story boxes made with the proper pitch to allow bees — Upper story of smallest hive may be made wide enough to hold 2 frames — (20th) Better plan for entrance (strip) regulator — take out a piece 1/4" deep by 7/8" wide rabbet at each end so that when strip in place bees can pass in and out at ends — corner blocks not interfering — The whole strip may be different sizes or bees build any height desired — In winter put over 1/8 to let out bad air and let in good air — no mice — bees no insects out at corners — May be used in combination with magazine blocks — The 10 frame hive with 6 in each of side apartments will likely be the best

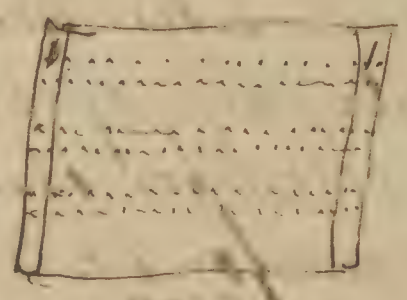
Best I have think best to make — It will not be best to think of upper tier of frames — upper cover just high enough to allow of upper set of boxes — If boxes are used for all 30 of smallest size may be used # Only boxes used only on central frames and the others used to empty in to hold small surplus honey frames — or only one of side compartments thus used — Easy to keep a powerful stock in height of honey harvest up to the height of what they can do — Hive 12 X 12 X 23 3/4 will take frames for surplus holding 4 cards each 5 X 5 in the clear — a very convenient form for sale — put each one in a glass box — or two or any number more — or sent to market in frames just in boxes 24pt = for common purposes — Let hive have no rear side apartment! Back of 13 1/2 strip — with gutter and hard wood strip — and ventilator just as in old style — Hive B.B. will now come out from the rear by unshipping ventilator — and all filth, dead bees &c get out from the ventilator — Landing arrangement may be used if hive to be placed on Summer stand. If not not needed — This style hive will take 16 frames — May have boxes on central apartment — or both — If an additional upper story is used may accommodate upper tier of frames — for small cards of surplus honey — or double set of usual size boxes — This style hive the greatest room at smallest expense — all things considered — Notice tops may dispensed with except when upper tier of frames is used — Perhaps better to make upper story as in former style high enough for upper frames — it will then be high enough for double set of boxes — It may be best to make cover blocks of 1/2 stuff — and hive 15 inch for side to side — so as to hold 11 frames =

Improved Honeycomb B.B — Slats 1/8 thick — clamping strips 1/4 thick — 7/8 or more wide — nailed so as to clinch — heads for feet 3/8 high — Slats in Hole pull out B.B. remove heads — take old worker cags — remove feed board on under side take up window — to clean out — Hive open ventilator pull out B.B. — clean off — return — (23a) Set 7/8 wide strips in hive on bottom just fitting between 7/8 corner posts — for cross use corner post in rear — and back ventilator and cover for only one comb — in using

entrance and made partition in winter - which may have warm lining to fit up close to upright of frames - This will keep side frames in working order. There can be a better effect to prevent bees from making combs outside of a frame. The comb in front side compartment against which bees are to cluster in winter may have a strip of cotton or woolen cloth tacked to the outside to fill between with wool &c. to induce bees the more to cluster in and against that comb.

(33) Back comb frame (1,1) strips may be same height as Dam. B.B. when in it. Dam. B.B. - (B1, C1) fitting ends of B.B. to fill it out - ~~they enables~~ Might be Honey-board - or Cover of Frames.

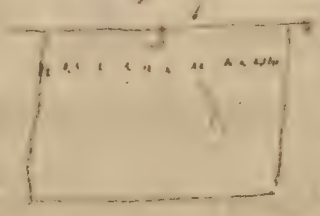
(~~[illegible]~~) Front cover frame to bottom of hive & frames - B. Sides to serve as handles made to adapt to entrance - This should be of two pieces - or parts = Front one to cover front side of hive - Rear one to cover all the rest - Made of 1/4 inch stuff for side pieces - 1/8" for slats - nailed clamping - clinching - or better - double side strips as in Langstroth's Quinby &c. No weight of bees is to come upon thin 1/8" slats as supports. The tops of frames and as far apart as in Quinby frames - need not be removed if space between hot cap & slats - When these covers are on and that Dummy Partition is in place bees can be confined to one side to keep them warm - are 1/4 thick & 3/8" wide - with an inch surface



(1,1) Lift upper cover - the slats rest between frames so as to clinch the nails - This may be attached at

(26th) Grande Divider - at its upper side say 1/4" as wide as hard wood comb supporters so that divider will come close up to upright of frames - and if covered with piece of old woolen cloth or wire heat can stay out warm - (Small strips 7/8" X 7/8" may be laid on corner blocks which will prop upper strip of divider over projecting tops of frames &c.) Divider must have some room under it to clean out dead bees - Space in winter with slipping cloth under cage - can be - Hard wood comb supporters - If there

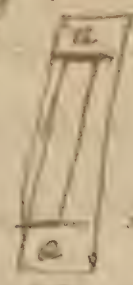
are made say 3/8" thick may be say one inch or 3/4" wide ~~at the top might then~~
The divides may be fixed to fit up close against uprights — Outside frames —
The two frames next to the uprights should have top strips a little wider
than the uprights — and make narrow enough ~~to fit out~~ cut to allow
combs to come up to say 1/4" of the uprights — on the bottom of the top strip
there be a strip with a groove (about size strip) to receive the comb — This
can be done on ~~one~~ an old piece of comb — In a full stock in building swarm
the combs coming down on part one near close to the uprights the bees are
theoretically ?) no longer able to spread their combs outside of and back of the
uprights of the frames — would be their bottoms. If the bottom of comb
be 1/4" which will the outside comb is kept up close the bottom bar
or 1/2" wide (1/4" say allows on each side of uprights) between combs and
of 1/4" for bees to pass for winter — partly at top and bottom
inside of uprights — the divides ~~should~~ may in winter
have a warm something tacked to it (or a strip of wood tacked to it) so that
it will come up close to the uprights —
however this extends up — In case the
bees be small put to the uprights



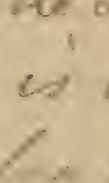
The dotted line seems
bees do not seem to
be able to cross it

against — the divides may be used with warm stuffing (say fine
wooden sawdust or shavings with wax) so that there is no space between the
uprights and the divides — (or) allow a strip of sawdust here bees may
freeze — partly as good if not best for thought cold to feel to
wind — warm to most advanced for feeding — Bees not fond
have to be shaved in order ~~cells~~ in strips of layers and close
not — provide for emptying — does not give much access to boxes
as the slots bees plastered — If such slots for bees plastered
have might be made just in my place — Have thin board with
stuffing — and arrangement for at least one frame and to come
near the uprights — by combs 8" — If found not be comfortable at the s

Otherwise a muffle by sawing = get out two strips say not over 1/8" thick - rest the dividing to make a muffle - but this is not perhaps quite wood enough at (c, c) for nailing

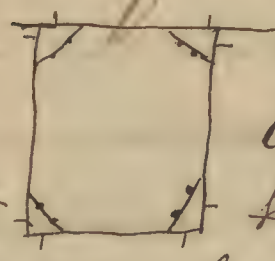


- but this is not perhaps of one to have - If deep frames are used it becomes more important - also to get rid of the most shrinkage of wood in the muffle - of planter 10" - Set hive is 12 X 16 X 13.75 - Frames show from the same capacity as 14 X 10 X 16 = old style - When one foot side comb is used strips of brass may be used - the upper one coming up close to the bottom of comb should have a large hole near bottom of one



- Opposite side comb only to allow - and keep bees from both sides - This style uses bottom of brass set (without bottom) on strips on frames or on frames directly - If used for outdoor bees may be what close and deep frames for outdoor use - I prefer this last style of frame - If this used for bees on other plan - also use strips of wood divided with holes in it for bees - had wood frame suffices - and small bees coming up so as to form rest for honey board - and supports

(2nd) New style frame.



Corner pieces at top as well as bottom - uprights and bottom about 3/16" thick - or 1/8" = Top, bottom and uprights here are nailed to the corner pieces on an iron surface so as to clinch (one nail from each side into corner pieces - either had from each side make all strong - This plan gets rid of the excess of wood in the uprights - gains room for comb - and enables bees to cluster against side combs - and makes I think a stronger frame - (..) New clinching nails - heads - - Here prefer - to get place for honey-board - or other cover of frames - Rabbet sides of hive to let cover rest on rabbets - cut down the rabbets where corner boards come 1/2" deeper - so you get room with a hand wood strip - or even the corner boards beveled up to an edge (and strip) for fingers (..) - If hive is doubled inside on the right (and left) entrance space can be got by the doubling - using 1/4" wide strips and 1/2" or 3/8" wide to make doubling against

22nd) New plan for Divider or Mantle Partition — Rail 3/16th strips between 1/4" double clamping pieces — as in Improved Cabin Comb Guider — nailed clinching — Let one end of clamping pieces on each side project up so that top strip may be nailed clinching against projecting ends — Let bottom strip come within 1/4" of the bottom of hive — These dividers may be made as cheaply inexpensive as

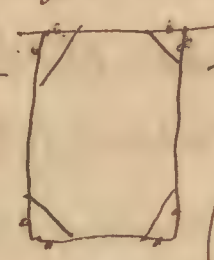
(25th) — To get side frames 1/2" lower without mantle bottom board —

Set

repeat sides of hive — This lets frames in front apartment 1/2" lower — (1,1) may be nailed on — or ..... These cut out — a small triangle △ will help bees to get new corner —

Top strip laid on bottom will keep bees in place — a small triangle will help them in above —

Oct 4th — Alley's hive — easily adapted to side frames — Set boxes be first in corner — with 1 3/4" holes for bees to enter behind frames — Top boxes may be screwed to sides, and on edge of top boxes thin strips fastened to receive side frames — the mantle sides being taken out — this economizes all the space — or the corners might be angled for small frames — or slats (5th) — Neo Frame —



— needs only two nails at each corner — no clinching — uprights and top and the whole frame admirably stiff — ~~at least~~ smaller, one tenth space gained — by new style — so that two frames will hold more than eleven of old style —

Use no back restriction — Make entrance 1" high — Use corner blocks in front to get two frames than — Use none back — the space room gives place to put one frame hanging from front to rear 1/2" lower than the other frames in back apartment — the frames in back apartment for supplies in small frames set in layer cases — or for emptying — away from entrance — and where bees will feel most inclined to put supplies — Top crew roof and all together — like Alley's — Grays & Langstroth — it makes addition use one room for boxes all over surface — if new required — but my plan is to discard boxes and get in these frames — or by emptying — Small slats 1" wide 1/8" thick — will answer to confine bees when first hived — ~~Mantle honey~~ Mantle Bottom board with felt removed from front — dented corners might lay just within so as to let bees enter near uprights or front apartment only made warm — divide to shut off back apartment — center apartment has warm

cuing over it — bees will cluster against comb in first apartment — lodge in that comb — pass from comb to comb &c — (11th) = Style of hive South of Ohio and Potomac Rivers —

The honey emptier and small frames in large one to gather honey — enable me greatly to simplify hive for climates of moderate temperature — and perhaps of deep frames are used for all climates — and certainly in hives in the very cold climates are invariably indoors — Let front and rear of hive be say 1½ inches higher than sides — thus as in Fig (1) in my book, nailed on strips to get the rabbets — Let these strips be levelled to get measurement as in front 2nd story hives — Let board and paper diaphragm be let in ⅛ and ½" deep, rabbet up ½" — in the room here for fingers of floatid feeders the hive may be nailed against the levelled strips making all very strong with Boston board nailed on, too — Roof made Mly. Gray & style — If boxes, tin top, tin bottom an addition used — Moveable bottom board for cleaning out easily yet as above — not needed except in cold climates — In rear use frames with small ones for diaphragm — or empty — If Bar frames used (in side cover) — is used make in two parts so that main only removed — Impossible to improve on this for simplicity and cheapness — Boxes may also be used below front and rear (frames being kept centrally) three tiers of boxes (4 in a tier) on front — three in rear — Dimensions of hive — from front to rear — 28 inches side to side — 12 inches — depth 15 inches —

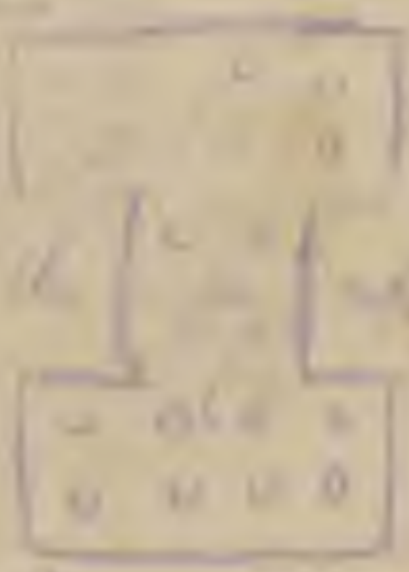
June 27, 1883

Matters to be referred to in my new book.

A.B.F. Vol 2. P. 74 — History of the discovery of impregnation of Lunar Bow

Oxford June 18th 1884 — Breaks from Kirkham wells [illegible]

[illegible]



2(24) — To escape Impurities of Queen by selected diseases-extract for queen of May 17th 1889 — Let small swarm have wire cloth windows — mother too fine for chickens — If workers could fly in and out at wire — chickens would soon be shut pilfered to fly out — unless they not agitate around the swarm — know of nothing better and in the form be ready to do their work. If thought best cut wings from place be allowed to fly out at intervals — a few days of intervals — but too many for fear of their getting too lively or the wire and distribution cost other bees by putting those hard upon your best stocks or fresh out the largest and most beautiful young chickens to fly — you have now the control of the day for to cast from. It might be difficult to get mother upon wire allow workers to fly in and out and not queen — then the queen might be separated from leaving their neighbors late day new five days old — about a week last — then leave part of their colony in a wooden box set on stand of old one to catch up and retain returning bees (gain work it needs to keep them quiet) — and carry off in small box to small coop — feed syrup and liberate queen — If she does not take flight of her own accord set cage on the on entrance of wooden box — set upon wooden chickens here no unused queen to find if you queen enters it the wire not be hurtful — If hurtful as you can by enter easily done here — As soon as one fertilized hiving another — or hiving second at once — leave to become the. Instead of small unfurnished room a tent might be used. Experience must decide where best to put wooden — how long the queen? — Queen in cast hight with the early in Spring but in June often fail of getting impregnated — If this plan assumes easy

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by artificial heat to make them come to maturity that they will be fertilized. Use say small Kerosene Oil stove! If artificial heat is used may be not cause them to fly earlier or later than common and be injurious even without any screen for insects? Heat up say to 90°. and feel at 106.6 & make

2u(20) — Queen Cage & Mailing Box — July 2[illegible] 1869 —

Set one side of mailing box here say have 1/3 square inch cloth so that queen can easily feed herself when it rests up against cork or if preferred a small slide to pull out and allow her to get in cloth — Make the box so that it will easily go between two combs, without spreading them too far apart — To keep water from evaporating from sponge — some tufts feather dipped in hot wax the slot in which sponge is placed so that water cannot evaporate through the wood!! The mailing box for imbedding queen —

[illegible]

[illegible]

[illegible]

[illegible]

2w (28) — Simplex Honey Receptacles —

July 17th 1869 — Mr. M. Baldridge has written his plan of glass jars to receive pieces of comb cut out from frames — square or flat — to be self sealing and fit for end for filling, honey be — to read pint, quart, 2 quart — Let such cans be made with groove in sides — so that small boxes without sides — fit left in that bottom slide into groove. Let such boxes on strips over frames in pint and quart — let outside ones only have glass in groove on one side — the other have marble glass sides resting on strips — must be a good comb — for Gleanings last on [illegible] sides — 1.11 about 1/3 lb — Easy to slide line when full into the jars — and if kept air tight honey would keep big time in good order such boxes — Easy prepared for market — lay strip together — set on a thin 1/2' board held by clamping ends — as fast as one sold turned up to

[illegible]

[illegible]

[illegible]

them — thus — Undoubtedly all the Queens were preserved —

Last summer (1850) I was requested to "take up" a swarm of Bees which had been established for some years on the grounds of the Pa. Hospital for the Insane — The swarm was originally lodged in a box 2 feet square — which was placed in a small bee house — in which were shelves like those in stores. The first peculiarity was the exceeding irascibility of the Bees — they were in the edge of a grove at a considerable distance from the house and were seldom visited — they did not act at all like domesticated bees. The second peculiarity was the immense number of bees going and returning — very many more than I ever saw before in any single swarm — Third peculiarity — the long-protracted resistance offered by the bees — it seemed almost impossible to overcome them whereas domesticated bees are off in their first resistance, especially when their honey combs are taken so subdued.

This is but a confirmation of the new view respecting the astonishing fertility of Queens

Fourth — The extraordinary amount of brood comb — More than could have been bred from one Queen according to any theory been yet have led of the number of eggs.

Fifth. numerous Queen cells not only in the old box but on the comb built in the shelves — From all the Queen cells — no proof that they raised Queens in them —

Queen Bee — From all the facts heard I am satisfied that there were several Queens living in harmony in this colony — In "Cotton's My Bee Book" is a cut representing the interior of a hive which from the peculiar arrangement of the combs was supposed to have held two colonies — the combs were separated as in the case mentioned by Dr. Packard — Undoubtedly Queens do not ordinarily agree to live together — but it did seem that sometimes they do. Might not hives be so constructed as to secure this? and if so would any advantages result from such a course? It is worth while to experiment further on this point.

beautiful ey-

Queen lost swarm — April 1st. Noticed one of my swarms restless late P.M. running out and around — at once suspected Queen gone — listened heard manifest hum — April 2nd opened hive — found royal cells commenced — Noticed same restlessness in a hive which had lost its Queen in cold weather — If we have the means of stopping swarming — I one which had not lasted for weeks until taken off —

(June 21. 1854)

Queen Jong — To prevent casting take away all Q's but one — put that one in a bottle so that you can see if it hatches —

Queen how to rear from Drone Eggs — see it a —

Queens — how to arrange hive for rearing — Set the hive have two divides — three (April 23 — 1850) long boards — 2 slots enter on front — ~~two~~ one on rear — each have room for three combs —

Sep. 18. 1851

Queries — What would be the effect of making second way so deep that bees could not reach transfer board except from the edge? Might it not be more certain to keep Queen always below? It could not much delay the work if too — If a little too deep they had fill it with comb —

Queens many — Suppose in Fall many Queens in colonies to be taken up — might not a number be put into a cage — with apart mats separate — bees able to feed but not to enter to kill? Need they feed all or any one?

(June 21. 1854)

Queen — How do bees when hives know that she is in? They circle all enter even if she is held in hand — or they are drumming and there is none with them — Men in they must assent in like them. She is there — for as soon as bees cease to enter in numbers if she is not with them they "hit out" and rush out to take wing — (*See below) I can by putting more to enter cause them often to go back — like those are in — but soon they rush out again —

* To make forced swarms take wing so that they miss perfect their new location — Secure Queen before she can enter — Set them down over — Place Queen on hands with some around her — let them take wing and settle around her — then put them to new location and old stock on former place — If this succeeds a point of exceeding great importance is secured — (Eureka?)

Queen — Where the bees common drones may be put out of queen

Dalgarno } flies — Queen flies ~~today~~ that has 3 lot drones,
Sept. 18th 1861 } liquid honey we know as they before common drones fly. when it drones are in full flight — having young queens three or more days old that have been fertilized from flying, fertilized as Mr. Palmer's Stamfyes p. 127) — before fine weather. Have drones — might not a number be thus healed in a short time? If plan successful we can get them in repeated from stock having the choicest drones?!

Journal June 12th 1868 (See 170—) [illegible] — [illegible] the [illegible] [illegible] for [illegible] — 12th 63 — [illegible]

R a

[illegible] the night of the 8th [illegible] [illegible] [illegible] [illegible] — [illegible] [illegible] — [illegible] [illegible] —

[illegible] — Put [illegible] — [illegible] — The [illegible] — [illegible] — [illegible] —

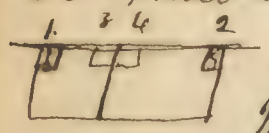
Repentance, "Although a ~~late~~ sincere repen. is never too late, a late repen. is seldom sincere." Bishop Hall

Repentance, "Were weeping repen. Hell would be full of penitents: for there is both weeping and gnashing of teeth." Jer. Taylor.

Revivals of religion, A reason why in some instance they add so little to strength of the church. (Daniel Clark's Sermons to be read in religious meetings. P. 146.9-

Regular Comb—

June 5th 1852 / Have six perfectly regular under combs unked well down put them alternately with six empty ones in a hive with a new swarm—when they have unked two or three days take these from them and give them six empty ones—then use these same combs in the same way for another new swarm in this way regular comb may be secured for swarm after swarm—with but a small capital to start in new—If the six to start with were combs of last season with brood so much the better—I feel that I have got it now—



If comb be stuck in bars it should be at corners—as 1 and 2—If there is enough also at 3 and 4—they attach them to 4 sides regularly—If only on one place it will be in the middle—middle piece is of no use—

July 1st 1852—Resin best for attaching comb—

La Reine — It sometimes happens that the small tentacles on the feet of a Queen are injured — and she is not able to travel easily and rapidly on the combs — this improves her worth — I had one hive (1857) thus injured — and have often heard slipping as it were — losing her hold and nearly falling —

Unfecundated — If bees have a fertile Queen they will if deprived of her at first hive an unfecundated one —

Queenless — The same day or the day after the loss of the Queen the bees exhibit their sense of loss most decidedly — run about — in and outside — or close watch should be kept —

Removing Queen — It will be well to remove every Queen in the Summer of her third year — Their fertility seems to decrease — The proper time to remove them is just before honey supplies begin to fail — and before the drones are destroyed. This is the time when the bees can afford best to be reduced in numbers — while they are carrying rather than producing — The young Queens will soon replenish the hives so that they will be strong for winter — These removed Queens might be made to form small swarms — three or four to a hive — to be used next Spring — and then killed next Summer — If there are no fall supplies of any great account the swarms deprived of their Queens may be allowed to raise their Queens from the egg — or one just sealed may be given them — but — if fall supplies about to go in then a young Q. hatched or just ready to hatch — The bees will be actively employed when honey is scarce for honey the rest of hard work for a while —

Robbing – Have sometimes noticed a hive being robbed which was busy early and all uncertain of what was going on –
Found fine Q. ♀ – not swarmy charged – on the shelves nothing but eating at
June 18th 1863 – opening of the hives – about 8 P.M. – seems to be the last time
for inspection – Strong that weather the bees fetched 1 P.M. in
a few minutes – Occ. to have together – Made a down – did not
get the queen – fed a cage one in hive entirely (Mr. Q. Blake gave me
some honey) – Now see – In a few days queen be – clear dark – the
bees clustered in the hive – one on the – Got a queen from Mr. Cairns
(19th) 60° – Warm cloudy – cloudy – 8 P.M. – bees all hives – at – Give P.M.
Cage queen to a good queen – [illegible] – Bees queen more bees swarmed
out – queen found in the grass – hanging off – [illegible] – Queen in the
hive bees [illegible] – and the bees much disturbed – Made an effort
today at 4 P.M. – did not get queen – bees disposed – Opt. [illegible] to be
done [illegible] – each one left in the [illegible] – never when drop the [illegible] –
at queen in the cluster of bees by [illegible] – a few days the bees
[illegible] the side of the cell – they in grey cast by things (a great mistake)
the bees [illegible] nothing this P.M. – think that the bees have left above
before the [illegible] – [illegible] in my hive – I am very subtle bees heat –
20° at light shade last night – [illegible] – 58° at 12 A. – 4 P.M. – [illegible]
[illegible] – for [illegible] – to cut for clover – Save my [illegible]
queen – (1) A bit upon neck of (1) – [illegible] in (2) – [illegible] – by queen
[illegible] light (2) – [illegible] – Now 17 queen cells in large class of (54) queen out to Mr. Smith –
(21st) 60° – Warm – cloudy – bees do very little – (22nd) 50° – Warm – cloudy bees
[illegible] – Made a few blunders – Saw bees let queen [illegible]
[illegible] – the bees reduce from [illegible] – [illegible] of [illegible]
Made 7 P.M. – [illegible] – on my large [illegible] – (23rd) 48°.
Queen [illegible] – [illegible] in P.M. – bees [illegible] – [illegible] – [illegible]
[illegible] – [illegible] – [illegible] – Give queen to Mr. [illegible] at 4 P.M.
[illegible] queen in her [illegible] (at [illegible]) [illegible]
[illegible] – [illegible] – [illegible] – [illegible] – [illegible]
[illegible] – [illegible] – [illegible] – [illegible] – [illegible]
[illegible] – [illegible] – [illegible] – [illegible] – [illegible]

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[illegible] R

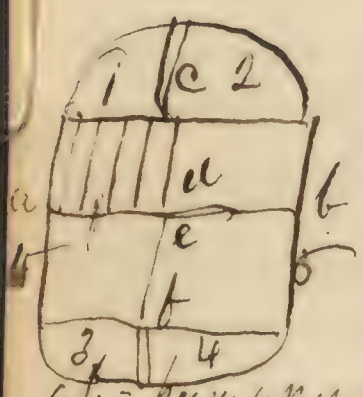
[illegible] (20th) 48°

[illegible] — Flies very large [illegible] — [illegible] — [illegible] —

Rough Thoughts

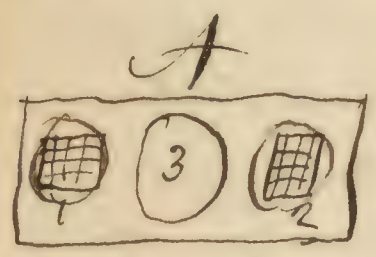
Queen Palace.

A hive of my size with one permanent and two movable partitions may be fitted for four small swarms and thus handed as a Queen palace – at any time it may be changed into one hive –
In the Fall put four small swarms which ought not to be left in their large hive – into a hive divided into four parts – by gauze wire in the partitions they may all be made to have the same space – this will make them peaceable – ~~you~~ they should be driven out into boxes – carried 3 or four miles – then put in – kept away some time – then brought back – have separate entrances – made for the back door –
In Spring may be used as a Queen Palace to provide fertile Queens for Ar. swarms and at any time the four feeble colonies may be converted into one strong one – leaving one Queen – after using all the others. This dispenses with the need of any separate Queen Palace – and turns all weak swarms to the best ~~cogitations~~ advantage – A square hive with uncommon protection against cold – best for this purpose – Ar. Queens may readily be obtained in this way in Spring – Put a divider very thin board or metal – into middle of a strong colony – shut up one half – next day open this and shut the other – give water when shut – continue this until division is complete – The entrances should be



ab = permanent divider –
cd, ef – movable

1, 2 – Entrances
3, 4 – Do –
a – 5, 6 –



A – is a permanent divider.
1, 2 – Gauze wire open wide

The hive may be divided into three by two dividers of the usual form — and thus two colonies can be established.

separated — a whole might be bored for each with an 3/4 inch auger through the platform or by a board set up on edge on the slightly bored they might be kept separate — The part in which a Queen will begin to rear Ar. Queens — these may be cut out for use when sealed over — At any time the colonies may be re-united.

Fertile Queens — are with much more than ctr. Queens for rearing ctr. Queens — We must insert the ctr. Q. at least two days before they hatch (or say one) — to be certain of getting them from cells in which they are sealed. They will not leave for impregnation until they are at least 4 or 5 days old — day 4 — Two days more will elapse before they lay — At least a week is thus lost allowing some time — if the weather when the ct. Q. makes her leave for impregnation be unfavorable much more time may elapse. What a mass of multitude of eggs might be laid in this time by a fertile Queen — If we attempt to rear the ct. Q. from the egg a young Queen for the ctr. Queens — we shall have nearly or at least three weeks — three weeks more will elapse before any eggs will be brought to maturity and of this time the cells may have become too fetid to be with proper — If they have constructed more cells before the hatching and laying of ctr. Q. it may not be suitable for food — Even one week's gain will be of great importance — The saving on hand fertile Queens of very great importance

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Ar. Queens — If all the A. Q. are taken away before they are hatched — hard cast may be given under tumblers — for rearing more is a very nice thing to be taken away — If this colony gives too much they must be strengthened by having last with bees sealed cell given to them — A hive thus managed might be made to furnish a Q. for the Q. palace so that the four fertile Queens might be taken away at once and then filled supplied with A. Q. — which would soon become fertile — to be taken away in turn &c &c after they have laid enough to keep up 1 number in the small swarms in 1 Q. palace — If I found after dividing that 1 Q. was in that part which was strengthened did determine I must ~~breed~~ bees to fly to the Queenless part — This might at all events to have 1 must tend.

Queen Palace — Let the hive be just 1 same as the other hives — having 12 frames — This will answer for 4 small swarms — to be used for rearing Queens — Late in 1 Fall transfer to it four small colonies — be careful to give them sufficient honey and in good combs for breeding — set them where they will be quiet and give them all possible protection against cold — If there are no small swarms in the Fall, in the Spring a hive may be divided into four — or such a quadruple hive may be made by taking combs and bees from other hives — and shutting them up until they begin to rear Queens — this should be done as early as may be — From these colonies take all 1 Queens as soon as they are sealed except one from each — as soon as 1 new Queens have filled 1 combs with eggs remove them to form artificial swarms — If others just ready to hatch can at once be given them — they will soon have fertile Queens to be used again — The ability to supply fertile Queens or at least Queens just ready to hatch will enable the Apiarian to multiply his colonies to a wonderful degree — The matter must be so managed that the Queens rearing in these four colonies will be of different ages —

Queen Palace – If there are weak colonies in 1 Hall – proceed as follows –

Transfer all 1 bees in one such colony to three combs – put in divider – next day shut them up – carry 1 hive to another weak summer – transfer them (or late in 1 day bring their hive to 1st) carry 1 hive back – next day ☐ has it lately ☐ are shut up – carry it to a 3rd – and next day to a fourth – each new one put in must be shut up about three days – bring water and be let out when sun an hour or two high – dont let them all out 1 same day until they are well accustomed to their different entrances. Keep well protected in winter – do this in September – If only three are put into a hive 1 entrance may be kept quite distinct – Suppose 24 Queens of 1 3rd year are to be removed – Put them in 8 same comb and two into 8 hives – Queen Palaces. Use these next season for 1 swarms that want a fertile Queen. Use also 1 Queen Palaces for rearing other fertile Queens – At the proper season pick 1 Queen of the 4th year – On this plan there will always be an abundance of fertile Queens in full season

June 4th – Take Queen cells away from main hive – then put hood combs with eggs of workers and place on blocks under double glass. This will enable us to have a lot in the most correct form for use –

[June 4th 1861] > Clipping wings of queen – and keep her on board on the Quarry hives frames > ground – when swarm comes the hive crawl back and the bees return – If they allow her to hive in hole [illegible]

J. 2. This will answer –

Reitha –

this prevented see R. W—

April 14th 1853 — 1st Swarm hunted by many people — or keeping intended for Queen to get out —

Swarming — May not early swarming be sometimes prevented in this way? The royal cells are tenanted the bees are almost ready to swarm when a long spell of unsuitable weather sets in and the young queens are matured sufficiently before suitable weather returns to quite the untoward fate of the old queen by whom they are destroyed — or rather set must be reared and thus much time is lost. In this way although the hive is crowded early in the season late swarming may take place. Observations might be made on this point in Cambridgeshire. A new swarm always work with more energy than an old stock which has not swarmed. Two swarms united work with amazing energy. Would it not be well to rely for honey upon new swarms — doubled — and placed in hives suitable for storing?

Late swarming — If hives are very full of honey late in the Fall may it not interfere with early swarming in Spring? The cells are not sufficiently cleared for breeding — and those which are partly are liable to be filled with honey fresh gathered — Does not this account for the fact that late swarms if they fill their hives literally with comb and have honey enough to keep them over often swarm & cast it?

June 2nd 1852 — In an exhibiting apiary it would be of first importance to make bees swarm so as to exhibit beautiful appearance daily — can it not be done by having new swarms or bees without much comb — Queen confined in a Queen cage — and then shaken out or in some way made to feel her absence —

Swarming — After swarm comes out. If all things favorable in a few days surplus boxes in which all black comb may be given it —

(2 Stand for Hives &c
3 S C — Sa

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Shallow Cleanla-at Nile - Sa (Sw-6) =

Shaw-see So-

a S

~~Late~~ Swarming. In regions where the ford is very abundant but does not continue long - it may be questioned whether swarming hives managed in the usual way can ever be of much profit; The old stock will make but little surplus honey and the new ones seldom any - If in such places - swarming could be secured by early feeding in the time of fruit tree blossoming - and the ~~best~~ casts were returned to 1 parent stock - both the old and the new stocks might be relied upon for surplus honey - The non-swarming plan might be tried with advantage if every third year the old Queens were removed - and young ones sealed ones or mature were supplied - Artificial swarming on my plan so as to secure early and very large swarms would answer well - If there is not good late pasture - all attempts to multiply bees very rapidly will fail - unless recourse be had to feeding - and this is expensive -

Signs of swarming - All signs are fallacious - Every appearance of swarming is often exhibited - but 1 bees do not swarm - Sometimes they swarm very suddenly and with no previous indication - I have given up all idea of any certainty in prognosticating - Bees staying at home, when other hives are making ready is a tolerable certain indication - Also staying or shuting about the hive -

Excessive Swarming. - May be prevented by removing after 1 first swarm has left - all 1 royal nymphs but 1 one - The others may be used for making artificial swarms -

Plan of management - If the object to secure large amounts of honey and yet to multiply colonies - As soon as a hive swarms (If one does not swarm soon enough drive it) put it in a hive about half full of comb, honey and brood taken f. a strong stock - Such a colony will form 1 hatching of 1 young bee hold its own until there f. 1 eggs of its new Queen are hatched - It will at soon fill its own hive and boxes. ~~Glasses~~ If it has an old Queen before 1 chosen are sealed it will be supplied with a young one - (Vide Honey). This plan avoids all 1 objection to moving - and with my movable frames may easily be done and will secure in good season powerful stocks for honey gathering - (Over)

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Sermons, Designed to be used in religious meetings. by Daniel Clark
Very plain, and practical – most excellent –

Slats for hives – without movable slats no kind of hive can be used to best advantage – The success of hives with slats rests depend upon having the combs properly fastened to a single slat – so that they can always be removed at pleasure –

Swarms – The stock p. wh. about half of its comb, honey, and brood has been taken, (say in other box) not being removed p. its place and not losing any of its full grown bees – will set to work with astonishing vigor to replace its loss – and in a few weeks either swarm or deposit in 1 boxes surplus honey – The swarm thus comes of naturally may be hived in any common box – until their hive has been furnished with 1 comb or from another hive – the hive thus furnished may then be set on a sheet and 1 bee shaken by a jerky motion out of 1 box before their intended habitation – In any operation involving 1 removal of young brood 1 opinion should remember that it is unsafe to keep brood comb for any considerable time from 1 bees – if 1 bees once become chilled by too low a temperature they are pretty sure to perish –
If it has been necessary to drive 1 swarm – then 1 2 days the swarm should be put on 1 stand of old stock – this shd be shut up in 1 dark about 48 hours – and then be put in a new place – as far as convenient from 1 old one – about sun-set – of course it shd have its water feeder –
(May 11th 1861) Legs for hive – These need be done in fact – set the hive at least on a board – put two cords to the hive – to get a grasp – but it would be easy to make hive – and keep proper shape – the sheet would probably come long & be set more in reach of swarm – in winter bees could be forced to go to your place & hive in a new one – (14th) Took Mr. B.B. hive – no bees yet, but there no chance for bees to get in hive – (24) Hive only one board by 12 board wide – (28) Have only one leg on back mostly to suit after elections – Sold this in a place and be checked by a month sail.

Strengthening a weak swarm – Placing it on the stand of a strong one may weaken a former too much – Before sun-set place it on a stand of a strong one when you have caught enough bees – return strong one – place weak one on its stand – keep shut late evening of 8th day – Do this in Spring – but say when has many a strong – the danger of quarrelling – The bees taken from strong one will not sensibly weaker it – but will be invaluable to strong one –

3rd Swarm – Give a hive a Gay Sun-day it has thrown its first swarm – will not this present after swarm –

2nd Swarm – delayed long enough for gray to be sealed up – if this were not done may will perish –

(April 1st 1861)
Stand for hives = Under projecting ledge at each back side have two legs screwed say 7"X7/8"X1/8" – also two on the front side – 5"X7/8"X7/8" – (instead of 7/8" wide better 1½" wide) the 7" and 5" are projections below bottom board – have them come exactly so far to set ~~on a strong~~ under ledge – leaving upon the ledge no more than – take care of the screw heads for the legs sideways against sides of the hive – Hives set on hooks placed – Put blocks nails on bottom of legs projecting out about 1" – If the hive is to have a deep bottom board then the legs must be half inch for the hives – so that when screwed on further if short it can easily be set 2" below – (April 10th) Same legs for deep O.B. some hives when comes – to keep Bees from tearing up legs on examination

(May 10th – 1861) In Dec unship front legs – and you have a large door – (with chip bottom board also four short nails for legs if you wish to unship use the legs for moving – "Cat Lathes" Board

Sting of the Bee. Personal Experience – that in course of time the venom loses its power – Same fact noticed by an old writer whose treatise is quoted in "Cotton's My Bee Book." Curious remedy prepared by him for the sting of a Bee. another sting as near as possible in the same spot – Genuine Homœopathy this – D. S. D. first trial of this remedy.
Irritation from friction – all remedies which require to be rubbed in rubbing more than useless, as in this way the poison is rapidly diffused thru the system. Way in which and old mosquito bite may be revived by rubbing. Best mode of guarding against it. Cover the head, cover the face, tie up the hands and quietly retreat. Bees in the early stages of hysteria very irascible. Breathing on them shd be carefully avoided – as it always provokes them – With proper management bees are by no means irascible insects tho many suppose them to be – We are told thy persons have died from effects of a single sting – and so they have from the scratch of a pin – only in both cases their blood must have been in a peculiar state – It is very rare thy we read of any serious consequences from a sting for a whole any year we are pained with a loss of life from hydrophobia – Bees may be so abused thy as to become absolute nuisances – they may be so domesticated as to become almost as harmless as flies – Honey Bee – losing its sting – reason – intended to be domesticated – this after it —
Bees when rearing Q. Q. much more disposed to be irritable —

Shipping Bees – Dec 2 w (11) 1868 –

i S

Simplicity. The simplest construction of a hive is better if it can be made to possess necessary requisites of a good hive – the combining all important requisites in simplest and cheapest manner has led hive – A through practical acquaintance with the habits of bees indispensable to construction of a good hive – Although my hives may at first sight appear quite complicated, yet I am persuaded that a close examination of them will show that they are quite simple in their practical management – The human hand is in one respect a very complicated piece of mechanism and yet with what beautiful simplicity does it work? All its various parts have their important uses and not one can be spared without an injury to the whole. My hive with all its various parts will be found to require less time and trouble in any of the practical operations – such as hiving bees – depositing bees & taking off honey – &c than the ordinary box-hives of the very simplest construction – If the peculiar management for

Size of the hive – This must depend upon the productiveness of the district in honey – The Polish hive is immense – I recommend that the smallest size used shd not be less than one cubic foot in contents – I have used thirteen inches – in depth with great success – The use of a divider will enable us to use a larger size – and the bees may be confined to as much as they can occupy with advantage –

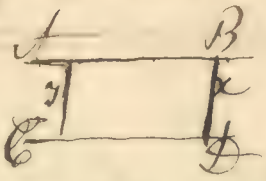
(April 6 – 1861) My frames 18⅛" × 18⅛" × 13" deep – these already made may have the three inches put below (especially when the frames are placed in the hives) – These already made may have 2 inch put below – [illegible] hive large enough to be [illegible] – [illegible] – [illegible] –

Sovereignty Divine, the sinner's only hope. Philip. Manly Piety P. 21.. 25 –
Scouts – Much written – Bees sometimes have chosen their place and go without hiving –
Sometimes stay in new places – Mr Zollikoffer – at Salem on a fence rail – made
comb – gradually disposed – A swarm on a wheat stack made some comb – At Mr
Zollikoffer Senr – lit on a willow tree on the lot and by a Hospital – made comb –
and was stoned by boys to get the comb and honey – Two swarms were hived
near where they lit – moved at night – Next A.M. at 10 O.C. – one left the hive
was followed about 1/3 of a mile – hived over a fallen tree – 2 years fallen –
tree were there dried grass in and out of a rat hole – swarm now discovered
hole a funnel and entered hole – as soon as well in the other left its hived
and did the same – tree cut – and removed to the house – bees worked
well – Two swarms entered a house at intervals of a day – went under a floor in
diff^t places – A bee keeper at the Lazaretto has noticed that swarms generally 2 to 4
when they come to the Delaware – and settle in his garden – and are easily hived –
Size of tree – tree removed more with a little wide side ledges would give room
for Bees –

For three tiers of boxes – if form wanted from foot to rear – easily gained
by extending rear over front footers – and using a short-back footer – or brackets to
hold a support for honey board – 12 boxes may be got in a hive with 12 frames with but
very little extra expense – By removing boxes this office suffices – Thus having boxes for
ten frames might use them for new swarms – putting the old stocks in the 12 frames –
That section should have blown better with 12 frames – If the honey boards are all made
on my old plan (with Baldwyn opening) 12 frames will allow 3 tiers of boxes – and these
boxes may have tops and bottoms 6" X 6½" – 6" on the sides for glass – or if the side ledges are made
3/8" wider – the boxes may be 6¼" X 6½" – 6½" is better for three store combs than 6" – and 6" is
too wide for two store combs – Measurements thus – Hive 16.875 = 16.875
Gain in 2 Sides 1.75 – 1.75
2 Ledges – 2.50 – .75
25 – 9.375
3 Boxes – at 6.25 – 18.75
Rem for hiding between boxes = .625

This arrangement gives up to the bee advantage over the surplus storage room –

Stand for Hire (May 10th 1860) made as follows — to make more



The Baldwin has regulated a box about 10½ inches high as a stand for hire — no lids — no bottom — I mean S at B and BD to project at B six inches beyond y — BD — 3". Bend the nail over the post projecting on a slipping board — & to be 2 inches higher than y — or rather x to project at below 2 inches more — sides of box to project 1½" over sides of stand — one foot projection cotton cloth nailed on to nicely rounded edges that come on ground might rest on hooks — painted — leave projecting in front to be let inside or outside of pulleys — perhaps outside. This with hooks to have back pulleys just one half size of front one. The stand and hooks are painted or coated with "India Rubber" except slipping board and traps.

No. 2. Straw for hire — Five small bundles of straw with big flat ends like frames in place of hay block — made fast to transom and to window sill (Dec 1. 1862) Set 1, 1, 2, 2 be bundles of straw laid on the floor — then Cap in shape of 2, 2 — bundles to cover the square — square tenon — mortise — to take the straw from rail — for fastening — made tenon to left with a rail of hazel — old leather — If the straw quite small tenon can be on the 1, 1 frame — Without the frame see the Cap with ventilation holes for circulation of air and yet prevent water coming in for fastening those the feet. Bundles 1, 1, may be as long as to keep at least 2/3 of the space on the floor. 2, 2 — May be very small — or slits will do —

Shutting up bees — In very windy weather — the hives ought to be shut up before the bees commence flying — ~~allow~~ for very many will be lost. Having ventilation from below they will not suffer for want of air — having water in their feeder they will not need to leave the hive for obtaining it —

Superstitions — Bigot — Bees — Pomeroy Days — mention some of them —

Simplest Honey — If there is a box placed on the hive — and this furnished with movable frames the comb may be on this — In this way the largest amount of honey will no doubt be realized — In having a new swarm they might have a box at once if I mean it powerful to the upper frames — Some bees no doubt will be wanted in it but breeding will soon be below — This upper box might have no frames — or else the handle board is in two parts — the upper box might set on only a part of the hive — It might be used to secure cards for transfer &c — Where honey is accessible to market this would be a most excellent plan —

Jan. 1st 1883 / Use — top for simplest honey — make roof like patent hive — moveable — which may be made as in Fig. I. Take set of brood frames used — or obtain — these best if honey to be offered — two frames might be used to get out and have it — best obtainable —

Jan. 1st 1883 / Make patent roof — get as much additional space in rear by a shelf — 38 — for make honey board all level — no projecting clamps — Make top cover with moveable roof — deep enough to hold special size frames — and wide enough for part to rear to cover patent roof and shelf — make part rabbet as in Fig. II — leave central 7/8" max. depth — for large frames to rest on — In back part rear set to a small board or Column 4 frames in one large one — large frames running from side to side and not from front to rear — Hive with ten frames would then give room for strings of 110 to 120 lb. Hive with 13 frames for strings of 140 to 150 lb strings — Strings would get these in cheapest way — Equally adapted for extra strawberries in winter — supply the same top arrangement to hives in use without destruction of existing parts! Remove roof of top cover and make it moveable. Place 1/4 inch projection from clamping honey board. Saddle cover so as to make it 3 1/2" deeper

1869 See 2 w (28)

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Journal for

S

I influence new plan to get most (See May 27th 1868)

Super-annuated Queens — Do not bees when they find a Queen growing old raise young ones? and do not these young ones then destroy the old one — & a day or two the old one perish very suddenly so that generally a young one not too far advanced to be charged with Queen after her death? Careful experiments ought to be performed to ascertain what age to wh. a Queen bees — Stem — By a little management positive of bees may be changed gradually so as to suit the season of year — I should prefer to have my bees S. E. by much effort — to continue until Nov. when I shall I am have Stem at S. W. — If bees are properly protected — perhaps S. E. best for pasturage —

Sam Homes — must prove a good crop for bees —

Sulphur fumes will destroy the worms in comb — when comb is to be taken and kept from bees it ought to be most thoroughly ~~fumed~~ sulphured — If this is done a second time it may be kept safely in a place where the moth cannot have access to it — it tight chest in box with arrangements for suspending the frames and for self-hanging — wire to guide —

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April 26. 1868

Simplicity Hy. Boxes — Run all corners with melted mixture — Have H. between hole same size and fashion with those of Langstroth — other bees out — run the mixture over the bottom board and back of H.

Front of box cover 7/8" lap then 3 1/2" at top — get rabbeted on outside strip nailed on as in figure & my back and back

Gables rear of cover have two gloves to slip down 1/2 inch slats kept apart by nails as in here with close fitting

tops of frames — to rest back part of frames on — & stiffen — (quilt gloves of hard cover or tin.) back of the

frames in which you form part the rear wide room for ten shorter frames running from side to side —

In ten frame hive of only ten frames alone or eleven — if you want to give honey for less labor —

upper chamber thus formed will hold about 90 lbs of honey — Hive with 13 frames will hold about 115 lb.

in upper box — and about 25 lbs more than the ten frame hive on the Langstroth — say 50 lb. more than smaller

In this way all my hives can be allowed from the present contracted form for a crop or honey to one of generous

size and at very small expense — If preferred the same arrangement will accommodate a double hive of bees —

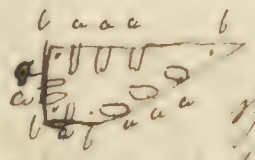
hive long about 43 1/2" high — these boxes may be in sections — Or the Colvin plan may be used — long wide

frames running from front to rear — with four small ones in each — with comb guides between — My See To —

Trap — Feb. 14th 1852 — To day have entered my trap with small tacks to give it elevation — combined — Moth, Worm and Drone Trap — 1st allows a bee and yet gives a bee air — 2 — Regulates a entrance — (3) Moth — Drone — Worm trap —

May 1852 — Trap will catch and thus save pays and waste — with a frame and hooks let this be collected — every few days — pour boiling water over it — Let some thing be put to catch the same from robbers — it will pay for all trouble — do one that has not caught it will wonder how made —

July 2nd 1852 —
Transferring — colonies from old box to my hives — Drive easy into an empty box — cut out their hood — and if you please empty comb and honey — fasten in frames with small twine — then shake out bees to ascend into the hive — with but very little loss may be transferred in this way —

Trap — Mar. 6th 1852 —  a, a, a are holes made with a gauge for the screws to spin in — there on the triangular edge are made layers so as to admit the miller — the b, b, b, b are small tacks on the screws which raise the trap about 1/16 of an inch so as to allow the air of the hive to pass under it and the space is a nidus for the eggs of the miller — this ventilates the hive — and when no ventilation needed — tacks may be removed —
1st — Moth Excluder. 2nd — Trap for the eggs of the Moth — 3rd — Worm catcher — 4th — ~~Entrance~~ Protection against Rolling Bees — 5th — Entrance regulator. 6th — ~~Refuse wax gather Bees~~ — Ventilator — 7th Refuse wax preserver 8th Drone catcher — 9th — Entrance closer —

To catch drones — Contract the entrance at the time that the drones are out in the greatest numbers — prop up the trap so that the drones can hustle under it — prop it up then (removing props) so as to kill them —

Jarring Bees. The Dolla Rocca - bees in Paris turner - the more they are accustomed to them - handled if carefully - Sudden admission of light from above particularly - alarms rather than enrages - withdrawal of comb from the hive above all other things quiet - feel that they are to have it - free themselves - must be no jar - Hives not withdrawing comb - does not answer as well - as jarring tends to loosen comb they have an instinctive aversion to it -

Transplanting - June 11th 1852 - I may yet have to come to the plan of having two Apiaries at a distance in order to multiply stocks to the best advantage - but if my nucleus plan will answer I can avoid this - Suppose the nuclei left alone until their Queen is impregnated & say I had 100 stocks and wished to make 50 new ones - Have 50 nuclei in the new hives -

Nov. 9th 1852 -

Trap - Cover - By making the front part of the lower part of the outside case of two inch stuff - 1st a place is made for the traps to slide under so that they are kept in place and not liable to be displaced by the wind - 2nd a protection is gained to keep rain from penetrating the hive - when hive inclined backwards for feeding - 3rd - it rest for the cover when elevated so as to give a view of the hive - all the advantage of having green - and yet none of their disadvantages - this projecting front and the traps should be painted a different color from the rest so that when hives stand near - some have their parts yellow some green - some red and some white - in this way the bees will not be near so likely to lose their gay Queen - or let all the blocks only be painted - and fill the traps only to such hives as have gay Queens which must leave to next dinner the only color suitable for a hive - is a snow white

T My Ten narrow-a sharp edge rabbets for frames see Vol. 2 Rw.

Tea - A tea made by pouring boiling water upon bees is said to be a remedy for stran-
gury - this is recent - old writers (Dade Collins) & Ben Lock) speak of something
similar as a cure for stoppages - on man and beast - May it not be owing to a effect
of a poison of a bee? It is worth inquiry into -

Surplus Honey arrangements To accommodate long-sized Section surplus honey frames. The latest
from Sw - Dec. 1865 I still keep on as I still now use it thus changed the Surplus
Honey Receiver on 2nd story (the latter put to 7/8" that with strips nailed on for rabbet. In all
cases this should be done so as to form a suitable handle for lifting the Surplus
Honey Receiver - It seems to me that this plan meets all the requisites of a complete and
and dispenses with the plan of excluding Honey Receiver (2nd story) over the hatches &c - It is cheap
simple - unsurpassed for large or small colonies, frames over brood (the 2nd) the top rabbet
strips will then be the top corners of 2nd story - Some plan needed to prevent high winds from
lifting off roof of hive - To prevent crushing bees right and left sides of 2nd story must be bended
to 1/8 edge - so as not to split off - Front & rear rabbet strips should be kept below level
5/16th and have nailed to their inner side 1/8" strips of hard wood or hoop iron for roof
to rest on without pinching bees - It may be best manner of support for frames to rest on
and for front and rear of roof may be got by bending - if so thick leather. To get
small edge for frames and honey board - rabbet 1/8" thick by 1/2" deep on inside upper part of
the front and rear rabbet strips - this will let the 1/8" strips of hard wood and will with
few nails hold them perfectly fast. The narrow edge for top cover may be nailed on the outside
of the rabbet strips and outside of sides of hive - to project 1/8" beyond sides - or better
slice may be let in a 1/8" thick and 1/2" deep rabbets - this will make all strong and
neat and yet be cheap - To keep roof from slipping forward to crush bees between caps and
back of 2nd story - let two nails be driven into back of sides far enough to hold it off - 1/4" - Two wooden
wedges hung with wire or waxed twine one in front corner of 2nd story the other on the back corner
(not of hive) wire hold wire fast - with least trouble or expense - have 1/4" ff nails on back of 2nd
story - Nails to go into cover into sides of hive like dowel pins will prevent bees [illegible]

[illegible] Plan to fix upper cover for frames so as not to require fixing of [illegible] - Let sides of
2nd story be shaped - tail below on three of cover pieces of same thickness as ends of hive - ends of cover
not coming down or going up as far as sides - cannot cut on cover strips of cover enough to
let them rest - put a bee and back edge - and clear by about 1/4 with [illegible]
instead of [illegible] let in 1/4" [illegible] - have ends of 2nd story cover within sides [illegible]

July 18th 1852 = If comet had been in the Line a very few days would have answered all the purpose - difficulty = apparent want of wisdom - and yet how many things to show the power by the Divine Being of infinite wisdom - same kind of difficulty in insects be

In the early ages but little known of the physiology of the Bee - then honey the only natural sweet - now less important - but an additional interest now from the wonders know about the bee =

Nov 12th 1852 - If wax was a good conductor of heat it would be more difficult to mould it - it would collect heat and moisture more readily - and would be more difficult to be kept pure by the bee

Nov. 15th 1852 - Bees when they swarm come off loaded - they are peaceable when loaded - if it were not for this they could not be domesticated

Nov. 16th - 1852 - Queen Bee indisposed to sting any but a rival - her single sting did assure no valuable end in the defence of a colony while it did destroy her life and ruin the whole family -

Comb - Fact, demonstrated by analysis - heat required to melt comb in hot ground by the change of honey into wax - Wonderful - ~~Mathematical~~

Mathematical Construction of Comb -

Instinct - If we call all the wonderful operation of the bee mere blind instinct - then must be attribute all these things directly to the divine mind - reason as we will all must at last be referred to God -

Wasps, hornets &c live solitary in winter - bees will be frozen -

Consequences of that law by which bees, wasps &c are indisposed to sting away from home.

Ventilation a most admirable arrangement - Facts - wisdom of arrangement - Different cappings of honey and bee comb

Feb. 2. 1853 Law controlling the increase of a colony -

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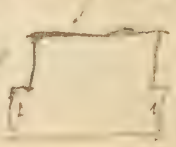
If the bottom steps are placed so as to be at least half an inch below the edge of the hive, the bees will be able to build their honeycombs in a straight line and be able to pass to and fro - if the bottom steps are placed so as to be "level with the edge of the hive" the bees will be obliged to make a "bulge" in the honeycombs to get out of the way of the steps - This bulge may be left in - and this is generally done - if preferred they may be made to cut it out - 22" of bottom steps are substituted out to allow honeycombs - the side pieces must be cut thus  1, 1, to bees work from the thin part of bottom steps to - To prevent water taking in new the bottom steps they should be levelled up to a good object - If bees of 2nd story made of same height as the

If

Time — is money — to man — it is honey to bees — at 1 hour of sun-
shine honey is done in about ten minutes or less — not a single unnecessary step the
nature shd be imparted upon a single bee — This shd be an axiom with 1 bee-master
and shd be kept in mind in 1 construc of every part of the hive and in 1 whole management
of apiary — He who has powerful stocks at 1 time when 1 honey harvest is gathered; in
hives where they can labor to 1 best most advantage, with judicious management will be
sure to succeed — The great difficulty with most of 1 patent hives is 1 large amount of
superfluous wh. they demand of 1 bees compared with 1 old-fashioned box or straw hive.
In every part of my hive I have made it a study in every part of my hive to save 1 time of 1 bees —
and it will be found that 1 bees in this hive can store their honey and fill their boxes in
even a shorter time than they cd do 1 same amount of work in 1 common box — this is owing to the
great regularity of 1 combs — wh. always forms rapid work — and 1 extra advantage facility with
wh. 1 bees pass to 1 boxes &c — Bees during 1 working season shd be regularly supplied with water —
a few minutes a week will suffice in large apiaries — and will repay 1 trouble ten-fold —
[illegible] and 1 hive no [illegible] and [illegible] — or two [illegible] — This
must allow [illegible] bottom strips to [illegible] — and allow it [illegible]
[illegible] 2nd story [illegible] [illegible] — [illegible]
— [illegible] — Height might be remedied by making sides of 2nd story say 1½" thick [illegible] 7/8"
and as the ends must come inside the sides might be say [illegible] the 1½ [illegible] 7/8" [illegible]
[illegible] make a better job — as 1/2" will not allow rabbet and bottom strips to me[illegible]
[illegible] 2nd story [illegible] Some may prefer to make 2nd story so
to have no hanging [illegible] [illegible] [illegible] [illegible] [illegible]
[illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]
[illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]
[illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]
It is not for advantage or [illegible] to lift 2nd story — which might be made in thick [illegible]
and no rabbet strips used — but [illegible] needed to handle each 2nd story. Rate Part of 2nd story the
rest on ledges might have the 1/4" hard wood strips — but as the 2nd story need not often be
lifted off little need of this — better use the pegs in corners to prevent crushing — danger of breaking off the
hard wood strips [illegible] — suggested to me by [illegible] [illegible]
[illegible] — This [illegible] [illegible] [illegible] — Rabbet ends of
[illegible] 7/8" wide and 7/8" [illegible] of top of frame — This [illegible]
[illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]
[illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]

Triangular Hive—Langstroth Style of—(Gleanings 15 1888) See—

Time — It is a great mistake to suppose that bee management requires a great amount of time. It is true that during season a large apiary needs much attention — and that bees must be visited by a watchful eye to know their wants — still the time necessarily required to manage to best advantage fifty colonies would not if averaged through every day of the year amount to the time demanded of a farmer to take care of a single cow — or of a few dozen fowls — while the profit would be vastly greater. It would hardly be considered wise or prudent for a person to expect to make large profit from the labor of bees without any care and attention on his part — as it would be to expect large profits from a flock of cattle similarly neglected. If bees are managed on the system recommended in this treatise the apiarian may select the time when he has most leisure — say a dull day — for the formation of his artificial swarms — and may present himself in various ways from being so much hurried in the swarming season. If his great object is a rapid multiplication of his colonies a larger demand of course will be made upon his time. I strongly recommend, however, to all who cannot find a ready sale at good prices for all their swarms they are willing to spare, or who do not contend to make the keeping of bees a business on a large scale, a more slow multiplication of colonies. They will find this a safer system of management, one that will demand less time, and will yield the largest supplies of honey.

It calls for frame 9 5/8" and frames 5/8" thick on tops — and 1/8" slope to 1/2" above rabbet — and 1/2" above dado cleft in top of end bars. If this is used — keep as before the dado cleft 5/16" deep. If rabbet slope be reduced (cut below) at ends to 1/2" slope (1/2" slope) and part of dado reaching to form. Then expect to see — 1/2" slope to be the [illegible] — Jan 5. 1886 — Dado reaching to bottom of top bar — [illegible] 7/8" —

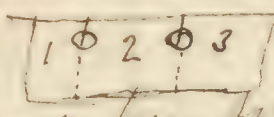
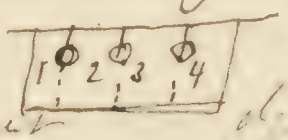
See Vol 2nd Rev — for much better plan —

3 Sa Ni — 19th — 54°, 92° — A.M. very cold — raw — cloudy — not a bee moving — Sale
P.M. — bees come out leg before — Sun in the evening cold — Cleared up
after queen had laid — Notice that my hot quality hives build three combs to the side of a
very coarse kind — very thick — with large cells — they are widely valuable to build at all — Seen it
many of my queens are laying with black thorax — Queen of a nucleus that was lost yesterday was
Monday 20 1871 — before this laying freely today — (20th) 42° — Beautiful day for honey —
Stocks — Looking up — At five P.M. found that had lost my queen building drone
comb out of a very thick coarse pattern — a mass of wax — Gave a nucleus with a frame of
(1) Stock an queen of last year — infested by moth — very
very good — may be one must have been taken from it — (21) Lifted out
with inflation — fed two cells from the 18th hatched — queen did not get
out of hives — 20th hatched — cut out queen cells — gave a 2 C. from stock
hive — July 1st — Found 2 cells infested with moth — replaced with 7 & 2 —
a cell 1st two sealed cells — dated before — cannot tell the queen or hatch they under
swarm — Wax very plenty find it a good plan to have a special place to
set out which I intend to be replacing to take — as they seem to leave it and be quickly
imposed — at time which keeping bees at comb thrown of a bee drawn out in
the middle — the passage have a tendency to make comb go straight — Difficult to
(2) Stock an lot of last year fine gold queen — very — laying — | | |
3 frames of 7 — 2 are infected by moth — Find they have taken to the left
side — (22) ~~[illegible]~~ the bees from stocks, the comb or the cells of pure-made
queen stand in one places — and yet does not at all we as the old worker opinion
is very placed with the suspended swarm — and in many queen cells
been with commandments — (23) 50° — Beautiful day — great for honey — Opening
good and gave to me a very large swarm just alighting in bell — The swarm
I have had in it — A new swarm decided with guider — we had looked over for an
hour — queen could not fly — cell in lots of hive — Hive finished highly by gave the
called stocks — Cut here cell from in good condition — If they continue this
(3) Stock of last year swarm following vis 2 & 3 — has infected by moth
has one stock — one a little queen — other good — not more highly
stock — [illegible]
— [illegible] good yield — I make no more new swarms — (24) Rain in the morning
— a beautiful one for honey — (25) Rain my heavy at 4 A.M. and heavy
[illegible] — coming off quite cool — at sunset white swarm out yesterday
was lost no cells — Hive queen — queen was laying eggs — If there is
not sealed [illegible] queen [illegible] to depart — Hope for [illegible]
at Mr. Hope [illegible] — [illegible] — [illegible] hives — 24th [illegible]

(4) [illegible] T/2 4

A.M. [illegible] 22 — [illegible] 22 — [illegible] 22 —

very heavy shower near sun-set — rested quietly for night — (29th) Cloudy in A.M. — Bees
worked very well — (30th) Very hot — bees work hard — slight shower towards Night — At 8 a.m.
with guides had very much capped cap. b — U U second Nest too — bottom and
drawing many bees — gave out to go to first to the guides frames — only to be sure
guides set in the frames — If one drawing assists so we must not this make slow swarm

Tulip Tree — This is one of the most remarkable trees in 1 world for the pro=
duction of honey — During the time that it is in blossom bees will
scarcely resort to any other flower — except for the head — The honey is dark in color
but of good flavor — A good swarm coming out when this tree is in blossom — were in
suitable weather almost fill their hives in 10 day or a fortnight — 2ts blossoms are
sweepin —  or even three —  Effect the same as to divide the
farm into three or four small ones — 3 Place
gives a central entrance passage — three so may as to be in the way — Place try a swarm
with two — keeping them when entirely thus — — If I can secure combs so
short as to dispense with guide frame a very great deduction — If some
(8) Made from the lower lighting off high — large — trimming of bulging sides
is needed — this easily done — more than small and not with patter — (1) They are
not curled — 2nd — they discharge — (3) They cause disorder — (4th) the inside are —
Spring not two springs and one curled guide or at most two of the lamps —
In a number of hives only 4 bees fetched and bees allowed to come up the other
hives — and often refuse bees — some empty on the outside of hives — other in the
main cone! Spent the night below — At Tulip gave bees in eye found
dead — night a few had been and been fed — (July 1st) A.M. Cast b Cloudy at
~~(8) Made from the 2nd lower lighting off high — large~~ — Swarm caught in a bee in the
woods (has similar tree before) and which had the queen removed at last during
and in the night gave — left for worst — only by the bee the cast, hives
left behind — guides in the hives — Removed guides from the hives cast very good
capped — bees from other caps very good — Saw other bees cast by the
hives good with faces — Dark — Stirred for bees — At new swarm caught very
much like — hives sealed — not filled — bees queen cells — queen must have fetched
(10th) Bees from the hives — ~~[illegible]~~ — and gradually — strong the
stalls bees cluster dies — some dis. very queen — at hives but no guides
by good combs — Hard that the bees are strong and moderate swarming but
perhaps some usually infest cast — (9th) Clear — bees did not move out
in A.M. — at fine swarm — Saw at 8 P.M. — 4 queen with signs of impregnation
but at least have only a few hours old — day very hot, warm & calm —
Saw bees flying to the more part of mile square — Saw some fresh queen
unable to fly — Bees start have fetched second day urgency to clean in front of

Hives should be removed ~~and~~ a third story given — Bees yesterday quietly in white clover — Sudden rise in flow yet — Quite late — (3rd) Very hot — bees work hard — In the double hives when first entrance is given slowly the bees go in & out — bees seem no fear of being stung — Many of them gorged — Expanded ~~at last~~ I saw first bee yesterday, but few bees last year & the year before — Think that the bees have a place of hot air in the day time

Tumbled — In warmest weather I conducting power of glass tends to make them comfortable to bees — If small ones in cool weather are scared even in the layer one — the space of air between wire retains warmth — and aid bees in comb-building — use small ones early and late in season — larger size when weather is hot and honey gathering at its height

Shape of cells in lumbers such as to discourage drones from laying eggs in them — Old writers used ~~them~~ glass in great deal —

Jan. 30th 1852 — Instead of tumblers small earthen receptacles like flower pots can be used — (1) They are cheap — (2) Not so good conductors of heat as glass — (3) ~~better~~ not so smooth as glass and better suited for bees to travel up and down and to attach their comb — A small hole may be made in the side and a ledge left to receive a piece of glass so as to ascertain when they are filled — Cheaper much than glass or wooden boxes — These pots would form most excellent cases for the tumblers in cold weather — [illegible] go straight —

[3 ☉ 2 ☉ 1 ☉] Hives could be (1) bad by bees having and [illegible] — Search thoroughly during day — Some in three places 2, and 3 — I think that the swarming does not tend so much with the fertile — Bees to make the cells [illegible] which can be found by guide cells — Some very beautiful specimens shed to day — (4th) Cloudy [illegible] — July 4th Hot day — in O.M. bees very busy — Noticed that in hot weather with bees are there alone the bees fly only at one and ~~[illegible]~~ only at one — Many gorged at the other entrance — Doubt whether the two swarms are at all [illegible] — Learned a hive without feeder they found of bees and cells — All depends [illegible] — The [illegible] bees [illegible] to cut off and the cells removed & mere [illegible] — They (1st) [illegible] from the [illegible] — [illegible] — [illegible] —

hood – No eggs – queen quickly laying – These queens were imported when only four days old – Saw a queen flying some minutes before she hive before no eggs – and 60 hours old & brood but bees no sign of impregn – yet bees had let queen out a short time before – Some of my queens merely their wings and legs yet often recovery from trouble – Set out an Italian queen after last single day confined to cage with bees in cage – Total did one of her escape – Had a good swarm

(13th) ~~Total queens 12 new old queens~~ – after 6 P.M. – Hived a few days ago two fresh swarms – some quarreling – bees have made as a few small comb – pinched cage out into hive – drones in small cage coming out – Drones kept in to keep in black drones – this P.M. – all out in hive – cleared – a great black – about half a pint of dead bees – all in one corner – bees could not get them out – smoke forced them out – removed them – and bees have gone in nice – have a good queen – July 6th Very hot 99° – One heavy comb in second story burned and fell down – cleaned comb until fairly fair off – Queen queen out yesterday impregnated to day – Found eggs in four of the hives removed

(14) ~~Total queens 12 four old queens left~~ – yesterday P.M. – and this morning – one not hatched P.M. – from one three days before day hatched – one four – Most of my queens seem to be impregnated accounted for this day in the defective in of day accounted – (15) Took away a fresh queen from a nucleus for about half an hour – returned her in an hour after found her imprisoned by bees – had put her in a cage in which a short time before queen had been kept by bees from nucleus to fasten comb for under [illegible] – after removing a fresh queen from a nucleus gave a queen cell from hive. day P.M. – The bees not disturbed – Saw after sun set many drones collected

(15) ~~Total queens 15 four one day old left~~ – bees in quiet – hived four fresh queens together in a single hive – this last swarm and is a notice given to look out to relapse bees dynamo – (8th) Very hot – but found large drones perched round hives – only a slight one here – bees have taken well – yesterday saw the fruits of those 24 hours after queen was imprisoned – Removed comb where queen was imprisoned five days no eggs – at smoke nucleus with a small queen cell found a young queen found large – Three big queens had hatched one in the bottom of hive – Three drones

(16) ~~Total 20 – four old, old, old, old drones~~ are being expelled to day – Find that the plan of letting the bees on the 2nd story does not work well – bees do not incline to enter them – (9th) Very hot – Found another comb in upper story finally fallen from heat – stuck on dried grass and to be put on top of hive hives one black hot weather – Found an Italian killing a number of bees – all were hybrids clothed with ragged wings – had long in them – The stock had a comb molten and honey in it – [illegible] called them to collect that got a little [illegible] – An Italian queen [illegible] – Saw a few drones [illegible] in my positions hive – [illegible] the bees have [illegible] – This year a yielded most honey –

[illegible] hives to it in the comb — Two years ago produced nothing — This year appears to be doubtful that bees many died here — Hard it seems to yield every other year — Have also abundant swarms getting comfortable here — The season here [illegible] — Rain this P.M. with thunder — Enough may perhaps be heard some — Have to day 91 stocks from 81 and much sunflower honey — Queens from Glen Lake are (Isaiah 10. v. 12)

~~Unrighteous men May be God's servants~~ & rewarded by him (Daniel Clarke Sermons P. 174)

[illegible] not to be [illegible] — (10th) Very heavy rain last night and all this afternoon — Garden drain discharging powerfully — until East-Cool — Two queens born on the 3rd leaving 991 to day — Saw one with 4 yes yesterday on the 5th — She had [illegible] this stock — was laying at noon — this is the first seen on the fourth day — (11th) Fog — [illegible] moisture — Bees open [illegible] daily on clover — Young queen of a nucleus which has replaced her hive — a knot of bees on the outside of every hive — [illegible] — Got bees out of a hollow by [illegible] a nucleus — [illegible] the hives the bees [illegible] — (12th) 54° — [illegible] — [illegible] — (13th) Hot — Hazy at night — Get cool [illegible] — (14th) Hot — [illegible] — Passed out [illegible] — [illegible] — (15th) [illegible] — Very abundant rains must advance the growth of the fruits — (16th) Heavy rain and wind last night — hot day — notice that drones [illegible] 191

[illegible]

queens — while with Amelie I was not successful — Wed bellows — bees very quiet — (17th) Rain again to day — Last night received bee queen from W. M. Gray of Ohio — One of the Carniolan queens they sent has done well — the other queen they sent last year has done well — Hatched out (14) queens — A queen clipped & with them escaped on the flight of July 4th — but returned & settled in the hive

Unitarianism, Causes of the introduction of into N. Eng (Sp. of Pil. Vol 2)

are out — Wed 20th Found cut two fine bees — More dark (?) queens have hatched — Gave the drone traps to the swarms — these seem to be the best thing we have to have in the way of a main defence in Lettuce drone — Wed the experiment with success in removing more black queens — Have put in the big bee house the hybrid (?) queen I had last year, and the bees, when they are well covered by the bees — Saw drone eggs in new cell of a black queen — the bees had begun to be busy getting rid of it drone — One week about it — (18th) Very warm no rain to day! Today gray queen gave the cell — about three found the injured — but he is caged again — found a sealed queen cell — Found the drone trap in good — but seems to be strong enough in getting the drones — put the hybrid queen in cage

[illegible] — Confined queen [illegible] — [illegible] queen [illegible] — [illegible] queen [illegible] — (24th) Fine day — [illegible] — Removed queen [illegible] — [illegible] queen [illegible] — [illegible] queen [illegible] — [illegible] — (25th) Cooler — [illegible] queen [illegible] — [illegible] queen [illegible] — [illegible] queen [illegible] — [illegible] — (26th) Warmer — [illegible] — [illegible] — (27th) Warm — [illegible] — (28th) Warm — 82° — [illegible] — [illegible] — [illegible]

U U

[illegible] — [illegible] — (29th) [illegible] — At noon
[illegible] — At queen in a cell
[illegible] — At queen imprisoned about
2½ P.M. just capped at 8½ o'clock of the 4th day — had only [illegible]
[illegible] — drones left out [illegible]
[illegible] — [illegible] — [illegible] — [illegible]
[illegible] — [illegible] — [illegible] — [illegible]
[illegible] — [illegible] — [illegible] —

to the swarm — Caught a drone — organ popped out with a decided report like a small pop gun — appearance very different from the drone I saw a few days since — popped beyond the piping a small trumpet — U — U — the stalk full of air — beyond this the same white mass seen in queen cells — the top [illegible] at the end of this end yellow under it — forms like appendages as they to hold fast — it is pressing to see how — well the white mass would make the horns — these [illegible] the bee is doubtful whether to have a queen or not — just before dark I dropped up with a bowl and bag bees and found dropped before the nucleus — seemed to shake off most in quietly — (2nd) Hot — the bees with just faint queen odor out — queen lost — hatched bees & the artificial in the same nucleus long — (3rd) Hot — on the nucleus a faint queen odor — the queen seen laying eggs — judge that she has effected — (4th) Hot — queen found before the hive with artificial comb — (5th) Hot — bees & queen rearing queen cells! — on the queen cells at midnight — hour of the 11th day they cap — it has to be that the queen has been given in place of the stolen one — throwing the eggs in queen cells — usual number left behind — [illegible] because of the fatality of the queen — Found that a faint taste had set the eggs in the cells — for a few days in order — takes a normal queen [illegible] to the usual cells by day and night. Egg only left in cells [illegible] queen cells [illegible] queen cells [illegible] had a queen hatched the [illegible] last night [illegible] [illegible] — of [illegible] again — Today [illegible] for [illegible] — (6th) Clear weather — more rain last night — great [illegible] weather — Had an extra queen from my old queen — last of day (49) queen as I do not want more queens for in my apiary — have had some very beautiful queens for [illegible] — [illegible] queen [illegible] — A queen [illegible] [illegible] days has elapsed — [illegible] "at on" (7th) Very hot — Have put a queen cage upon the nucleus with my old queen — Did queen in the nucleus [illegible] to lay drone eggs — Had a hive [illegible] — [illegible] of the bees — bees have left the time get their living & [illegible] — [illegible] — (8th) Very hot — bees flying large — Have for one [illegible] comb part in [illegible] has a [illegible] of drone brood — A queen two weeks old has [illegible] — comfy — (9th) Hot — beautiful shower — A beautiful faint queen odor from a nucleus — has had comfy [illegible] — more bees fallen when they quieted down — [illegible] very beautiful odor — A faint queen odor confined 48 hours attached by bees hunting upon her — A queen that [illegible] queen [illegible] — [illegible] — [illegible]

Ventilation for human beings – See P. 150 388

V a

Ventilation. If bees have only a very small entrance they are able by a rapid fanning of their wings to keep a current of their hives pure – In very hot weather a large number may be seen stationed in front of a entrance engaged in this laborious occupation – Much valuable time is a very height of a gathering season is thus lost to a colony – If a entrance is too large – danger from moth, robbers – too much air in rainy weather – often kills a bees – Vent° ought to be furnished independently of a entrance – and shd be under a proper control of a operator – The oft who shd watch his bees in a Spring and until a weather becomes settled warm, just as a gardener watches his hot beds – When they need more vent° – they will show it by a increase of ventilators at a entrance – so long as few or none are fanning there no more air needed – He who cannot or will not take the trouble in a Spring to open and shut a ventilators according to circumstances had better make no use of them at all – but manage in a old-fashioned way – give a bees small entrances and then entrust a whole matter to them – It will be seen from my remarks that I am opposed to recommending improved systems of management to those who are too negligent to make any improvements – Nothing is more injurious to bees than a close, heat – such as is caused by a sun beating down upon thin hives – with little or no vent° – a bees are often compelled to leave such hives from a danger of suffocating or of having their combs melt – They will stand a severest heat of a hottest climates if they are not exposed to a direct rays of a sun – Confined Gardens are poor places for these bees of pure air – P.

Feb. 9 1850 –

Ventilation of Hives – Make bottom board [illegible] – leave some of the holes here – 3 in it open – (in a right or a thin) or open, between the boxes open –

Venti air – Strip for – The back ventilator should be – Feb 9th 1850 hinged to an edge – so as to go in easy – and to regulate admission of air – The thin edge goes in first – two nails to as handles – [illegible] – The back of it – [illegible] = ab – The side that goes on – ab – the thin edge –

See opposite page a piece of tin or zinc goes [illegible] – thus way to fit bees [illegible] thus way to that hive in – By such an arrangement complete control of entrance got with most little trouble or expense – Blocks wooden may not be used – I am much pleased with this ventilator –

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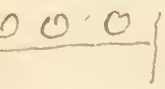
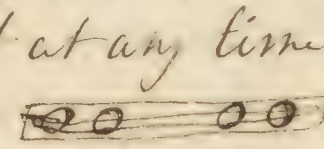
Ventilation — Let a Bottom Board be set upon an open box without bottom — This may be set up on stone, bricks &c and then tucked up all round with earth or tan-bark. The air of a hive in winter may be drawn up from this and be warm — in summer it will be cool — In Spring it should not be allowed to enter much —



The ventilators are made under the crown entrance — near the outside edge — where their corns can be easily reached — They are cased with gauze wire — and then gauze — or perforated zinc or tin — which may be covered or taken when ventilation is not desired — This enables the bees to separate the ventilators and cords of other plans — the entrance is to be contracted or shut up and yet the bees will have air — This places the bees in such a situation that they are not too hot in warm weather nor cold to lose their heat for sudden chills —

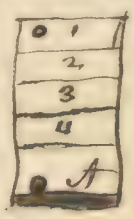
Aug. 5th 1852 — The gauze wire which covers the ventilating holes may be slid in — so that at any time it may be easily removed — The holes ought to be thus —  — In this case gauze wire may be dispensed with — If a gutter is made as in figure it will keep water from running in — If Divis are made to hold more corns — the ventilators coming at the ends will keep them cool if divides separate them from the rest of the hive —

April 7. 1860

Rear Ventilator — Let the bottom board of the hive project to the rear about one inch leaving back of the hive — this will give a good place for bees to alight — with other advantages — the ends may also project — about as much as the ledge on the rear side

Oct 28th 1865

Ventilator and Entrance Regulator 3 Let there be a front ventilator — hung blind fashion on a pivot on the same principle as the rear (Cobb) ventilator — It might have a central entrance cut 3" x 3/8" — Let there be 4 steps of wood — 2" wide — with depressions cut to light steps 1/2" long — first step 1/8" scant thick — 2nd step 5/32" — 3rd step 6/32" thick — 4th step 1/4" — 1st step



To confine the bees yet give them air — shut down front end back ventilator — To confine queen and exclude drones — shut down on 2nd step — To include or exclude drones — shut down on 3rd step — To give free passage shut down on 4th step — To give freest ventilation stand these entrance regulator on end and shut down ventilators on them — Have two holes in them to hang them up when not in use against hooks or pins on side of hive — At A have a ledge to prevent them out if pushed by bees — They might be cut in so as to be cut and galvanized — To regulate the entrance in front ventilator — have a slot cut in it — into which

See 1-a —

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The Shrines and alcoves I have written the greater part of in writing to day of the necessity for a free admission of air to the Shrines & well protected and kept in a cleanly state by fresh air wise & office!

Ventilation of the Hive. A hive should be so constructed as to secure a perfect control of ventilation. In the Winter and in the Summer it will be necessary to admit the largest amount of fresh air — In the Winter to prevent the comb from moulding and to keep the hive dry — If a hive is properly constructed in good season of fair weather bees suffer in the coldest weather by a sufficiently free admission of air to prevent moulding. Many sequents are ruined by being shut in cold weather. At this time they have no food to be injured by a chill — As soon as the weather is sufficiently warm for them to commence feeding the air should be admitted more sparingly. Sudden changes of weather when too much air is admitted compel the bees to retire for warmth from the comb containing food — the brood becomes diseased — their undue scattering is prevented. In the warm weather when the bees are crowded a large amount of fresh air is necessary — if but a small entrance is given to the bees they will by powerful efforts at ventilation do all they can to supply themselves with fresh air — if they succeed a large amount of the hardest kind of work has been unnecessarily imposed upon them — and just so much taken from their production of honey — If all the air that they need in warm weather is admitted by the entrance

for the bees, the bees will be very liable to be attacked by robber bees and by the bee moth. This bee moth will almost certainly get to the combs when the number of the bees is too much diminished by swarming to cover them — The only safe mode of admitting air so as to be able to control it at all times is by gauze wire with sliding shields. This makes the Apiarian to contract the entrance to his hive so that the bees may easily defend it, to shut up the entrance when it is desirable, and to control the ventilation according to circumstances.

"Ventilation from above" — If there is a small opening in the top of the hive in winter — it will allow vapor to pass off — and keep it less damp —

Hives buried — The fact that hives may be buried in winter shows that if bees are kept from frost — and from sudden changes of temperature they can live with very little air — Their hives not only admit cold through their sides, top & bottom but in order to guard against mold require an unusual amount of air and cold and thus are doubly injurious to bees — The fact that bees do exist and flourish with a very small admission of air — seems to be indisputable — they are at best seemingly almost dormant — this is the state in which we wish our bees to have them — as they eat but little and are most healthy —

(Feb 5. 1883) I am doubtful whether ventilation from above is of any advantage they do not get it often in a state of nature: by some with others without have a hole to keep open in the upper box in cold weather — then keep some more holes in the lower board open — I prefer & believe that a current of air will do harm rather than good: that the bees of just be at it flow from their stopping up such ventilators.

(over —

V

Rear Ventilator — If the drop Bottom Bone is used then the rear ventilator is not needed — as filth can be got rid of without it — and air can be given to any desirable extent —

(April 16th 1862) } If the efficacy of it may be
Nitrous oxide gas } not fairly & fully tested!

(August 16th 1862) } Stay for several days — slight rain day before yesterday — and we have
& Dec (new) } Now with cocoons — Three or four colonies for days ago kept coming in on the windows! I saw one cocoon with 11 eggs & among the black flies expected hen laid a lot of green cells — for yesterday & day before flies had left and in new cocoon — At noon saw hen lay in three cocoon — flies from other farm — Cocoons with cocoons on shoulders in laying in black cells — a perfect green — & hatching the cocoons flies flew away my dear! — No eggs stick fast for three days flies hatched and green in laying more eggs in their cells — Expect now to have plenty of Silkworms — most of my black silkworms have their cocoons — hatched hen lay — 17th last at 8. Ba — At Dream at 2 AM — an old black from ch. P. Red J. two cocoons out on J. J. — Green — May green has hatched — Next jerk at the rear cells — Observe at — May day Silkworm found the green cocoon! on the tree! If Lady Silkworm hatch — (1862) hatched! a large three cocoon in a wheelers abundance of leaves — Bee one jerking — not time to fly — did the Silkworm bite you — By a strong [illegible] the three eggs have hatched yesterday & can be made to stick — [illegible] the pain can be [illegible] the black flies. Had no in my hand to feel — [illegible] first cocoon out — [illegible] on [illegible] Bone — hen with a [illegible] [illegible] the boy [illegible] — [illegible] it in point [illegible] a [illegible] of the [illegible] from it — I think that the last first offering is [illegible] in the [illegible] the [illegible] is it it has injected [illegible] — I get some hen dome green for (1.2d) — hen lay the hen [illegible] hen [illegible] in them — the yellow chocolate colour — more so than the three hen — If the egg does not [illegible] the [illegible] does not [illegible] (I think) to let out [illegible] — (19th) Morning — May day — see hen in not [illegible] — Silkworm hatch — hatch [illegible] hen — hen having most of the [illegible] dried up — some [illegible] dried about the hen — Gave two green cells to [illegible] for [illegible] — [illegible] hen [illegible] in a few hours [illegible] green [illegible] — If the [illegible] stick fast sticking with [illegible] — May [illegible] — I think that [illegible] — [illegible] the green [illegible] [illegible] — Here flying [illegible] — [illegible] — [illegible]

[illegible] — found it out [illegible] — (20th) [illegible]
[illegible] — [illegible] — [illegible] — [illegible] — [illegible] — (21st)
[illegible] — [illegible] — [illegible] — [illegible] — [illegible] — [illegible]

minutes — opened again — took flight again — we gave them 20 or more minutes — finally when the cylinder had undergone inspection or help — finished & hive has not yet finished off — see it during — Drones from the fed hive are 0 on the wing and are very few drones —
(24th) Overcast — dry, cool — (25th) very hot day — Drones on Dolittle queen in the cages are been given to the stock of black ten yesterday 25th — Cr

Voluntary Principle, objections to. (when applicable, and when not.) (Spiritual Despotism. Section II. P. 41)

letting out a swarm from a fertile queen in the hive, and in leaving left by black queen? Bees then unite to hive, and form a queen when they have another, and a young queen in cage to meet the chosen, & then there is a caged queen in the hive! Finding that a stock without her may (? Not) a fertile queen then feed many fertile and unfertile queens (some have done on cages at once) & to day gave to two stock [illegible] queen — queen in cages — some fertile — then AB — then fa (one age the best & best) they are nice mostly cared for — If this is a law it is one of great importance — When a queen becomes fertile in one hive she may be removed — and left in a cage — [illegible] — the other having a sealed queen queen — and then another and another may be removed — using cages of queen at any time they be removed — when one queen is removed to be destroyed — we may be left — but it is seen whether the queen is received — queen may be left in cage for emergencies be — If the law proves to be true & forms a very great relief in advance in queen rearing — for in that I have now a number of queen cells that we may have queen — I can remove the queen to cage then can introduce the nucleus or other queen of last year that has reared in a fresh stock — the is entirely safe to the reared in nucleus — Bees in box on red clover — on spring bees seem to have been a red clover — box in Hadley seems to have a fact looking like [illegible] seem from sequence [illegible] in Hadley — a black stock doing nothing — (26th) Hot and very dry — Found an large quantity of white jelly in a sealed cell in a nucleus — cell has been down [illegible] — does known exactly when cell is capped? Found a queen [illegible] with very small cell [illegible] for days of yesterday — Stock with queen have taken care of fertile and unfertile queen in cages since yesterday!! Some Nutland drones still left — drones mostly killed off — (29th) Rain — Hoped rain — go on and wider state queen bee — in many places are dried up — One unfertile queen gone to stock with fertile queen dead in her cage — bees from the first stock and other hive — gave them another [illegible] they strike — It may be that a stock need a little encouragement to receive a fertile queen — the other three have not been [illegible] — 28th — Cool — Found stock that killed the unfertile queen — stores another — Gave them a fertile queen — Bees going back on red clover — Stock with very drones weighing [illegible] — two drones must remove their queen — the bees [illegible] — the more experience [illegible] — the drones are [illegible] out — The stock has gained in bring [illegible] — the fertile queen [illegible] — [illegible] queen gone — the nucleus [illegible] — this AM —

[illegible] Hives & Queens have been [illegible] (29th) Still noticed a few drones from my colony with late
drone molester — All [illegible] — to day the bees have been very busily [illegible] out — most of them got
[illegible] and could fly but felt resistance — Queen not found at once — Did not see V
day the P.M. to [illegible] for last fall during most of the [illegible] — Dipped tops of flow in honey and
gave to a strong hive with queen cells — new [illegible] — at Colony with half [illegible] other stage in
Voice of Queen — March 27 — 12 — Heard the peep of an old Queen while ca-
ging in my hand — rapidly fading up only stray cells and these for which
bees have just hatched — red clipe — another with 2 d. bees not old enough to gather
doing nothing — Red clover very good for colonies and flow — May eclipse hatching [illegible]
in second hive — with red on it but bees and is [illegible] — No bees have flown
of other stage in bee eclipse is in blossom — red clover last for fall crop — 30th Pad-
Colony clipped of queen seems to have slipped during out the drones — to see [illegible]
that old queen is gone — Remove fed to queen of a nucleus and give queen cell with
queen ready to come out — In 10, then 15 minutes the cover off and bees [illegible]
by the head!! One colony with fed queen allowed second fall and refuse to cage queen
to store — Other attend to flow — This mode of forming queen is very valuable discovery —
Would not bees remain with queen cells when the queen is caged? 30th — Find the
[illegible] queen after second hour all right — in putting into a cage a hardware queen
crushed leg with hope clipper! — found cells good one caught in hope clipper!!
In my hive with fed queen bees many go in a cage as if they fly to
unhatched cells — drone capped — Colony with late drones ejected a few this
A.M. — saw see more ejected this P.M. — In two nuclei that queen got lost the
queen found by the bees — In two clearing nuclei to day which had no drones
saw many drones join each one on the tree — Kettles hung "at-em" more
busily the last few days — (31st) Oct — Kettles have very busy [illegible] drones —
Two very queens still trying to lay at the close of the 4th day after
meeting drones — In no instance have I known them to lay before the
4th day — One stock with late drones has only no queen cells after lay-
ing yesterday and to day has capped drones — It seems they had
2nd story and did not seem essential — 6th story full of honey had
[illegible] — lost my 2 story — very many drones
have taken of honey for winter — must clean it and [illegible]
a [illegible] story in lieu and had [illegible] — Drones which joined the clearing nuclei have [illegible] — Before the
4th Have had two very cool nights almost frost — Bees still fear queens
in cages although they have fed one before — Find that queen when
[illegible] for cage are not always well received — Since [illegible] when the bees have
[illegible] to free queen in cage little bees can run no more queen — [illegible] 4/3

days ago they were here queen cells — since I have left a fertile queen in a marked one gone thus yesterday queen — Rather bitter wet
days have recovered — queen in cage already — cage down between combs — It is as the
practice of ~~the~~ bees to destroy queen cells. This I believe a queen hatched away from our
when the new queen is caged — Thus feel caged queen (only fertile) in the hive
our fertile queen is at liberty. For queen will go to meet them, and lay in
one is now caged queen one in the hive. (5th) Hot — very dry — early in st. bees
hung in small bee-heads — large stock with fertile queen had a later caged
queen fertile now — (9th) Very dry — hot — sweet flowers on the 8th — warm
dry — Queen with colony where fertile queen was caged swarmed out 9th bees
Put a fertile queen in cage — a second queen almost hatching for cage — hatched
and was protected by bees — In a cage colony which had stolen a
drone of queen cells — found them very full of royal jelly — several queens
reared in a large colony with queen cell. It seemed to me strange
that reared in the colony (Sept. 1st) — Inclination from usual cause — Stocks as a
general rule have less sweet honey — two four bees were left in last side. 11 lbs.
Hives had straw-bottle for several days on the frames of a colony — for one week to the
straw-bottle in the stage hives they had — Idea that the straw-bottle can be made to the
greatest service in entering bees — Very hot days from Sept. 8th to the 18th
[illegible] stopped storing — it in the 18th — Queen wasp fed in cage with little in bottles — (Oct.
the weather has most of the month been very mild — Thermometer one day 60° — Bees have been
in some stock honey since stock to day with bees leaving queens — they have
opened drones here drone and worker cells bottom bees eggs — It seems that
bees must enter an empty cell with worker bees — Oct. 18th 1865 Weather
from usual cause and from disease — Winter very extremely mild — but warm
bees flew frequently — Many died apparently of dysentery — there was much ex-
uded honey — The best stocks have done well but little stores — on the
whole bees have wintered finely — Queens were cold — much rage of bees after
on pleasant days — On Oct. 10th fallen yellow — bees state good, for flowers
[illegible] but found some honey brought in — 30 day found eggs in drone cells of some
strong stocks — Weather for the last few weeks very dry — very night or two that
the ground has frozen — (18) Hot day, rain — bees flew — Very great rain
fall — heavy rain in Nov. — Weather — bees get next to no honey — rain very much needed —
(19th) Light rain — chance of showers — (20th) White frost — 29° — Bees work on peach blossoms — bees
also drones — rain much needed — (22) Very warm — warmer bees in the night — (23) cool day — (24)
(24) Cold flowers — very mild in Nov. — bees and wasps — (26) Warm — pleasant — (27) Cloudy — bees
very warm — (28) Warm rain — (29) Cloudy — cool — (30) Clear warm — Nov. (1) warm — cloudy — (2) very warm —
(3) Warm — 91A — (4) Warm — pleasant — (5) Very — cool — (6) Cool — cloudy — (7) Showery — (8) [illegible] — (11) 12 very warm —

[illegible] 13th Returned home from Wednesday being second the [illegible] of my patient. Rain
last night and this morn — Drivers going out of Uppingham — from Uppingham to Rutland the 11th —
Crops looks very promising — (14th) Cool windy — Very little — Business in Uppingham
slack in Uppingham — (15th) Cool [illegible] — (16th) Cool [illegible] — (17) Cool night — Business in Uppingham
very — (18th) Very frosty very cold night — Very little doing — Farmers should be very
careful with their stock — Prices down — (19th) Night frost — wind changed to South — pitch dark
Sam Lee yesterday working hard in wild stony Uppingham my pupil — Second set of
vicars have just opening — Been out outside the hedge — (20th) Due to leave Uppingham
Visit Mother & Dad with 15 from here — gone home — Very cold outside hedge —
Had two handsome grass hounds fed [illegible] — Rain [illegible] — Was [illegible] from here —
left the 15 from here for [illegible] — Second in South field of [illegible] — Uppingham
(21st) Dull very wet — Very hot doings out working — Very [illegible] — Very [illegible]
Left some stock with [illegible] — Gleaning Pasture [illegible]
[illegible] in Uppingham [illegible] — (22) Slow very — Had some beautiful [illegible] —
Very dry — Second in Uppingham — Little hoeing [illegible] [illegible] — [illegible]
and [illegible] — (23) Very hot — dry — windy — Off [illegible] of August Uppingham — Very windy
with [illegible] and [illegible] — A good [illegible] — Very [illegible] — If we do
not have rain soon — Prospect for hops bad — Not at [illegible] — Very [illegible]
in hop bags to day — Only 12 days digging they were taken out of [illegible] — [illegible]
think bags for my hop machine to hold [illegible] — [illegible]
from old bags — (24th) Very dry — warm — Very little work for Second hand
[illegible] — (25th) Very dry and warm — Much work on Second — Not [illegible] —
not so dry — Two weeks [illegible] rain — Crops already have suffered much — [illegible]
each year [illegible] — Very bad for the [illegible] — Second
[illegible] last year — but [illegible] — Very hot weather [illegible]
[illegible] — (26th) Very windy — Very hot — Farmers [illegible] — [illegible]
[illegible] — Very [illegible] — Before [illegible] — [illegible]
[illegible] — Left [illegible] — [illegible] — [illegible]
[illegible] — (27th) Bright morn — Last night very [illegible] and thunder
[illegible] — [illegible] — [illegible] — [illegible]
come to it — [illegible] — [illegible] — [illegible]
[illegible] — [illegible] — [illegible] — [illegible]
[illegible] — [illegible] — [illegible] — [illegible]

War, — destruction of life caused by. (Burke. Vol 1. Vin. of Nat. Loc.)

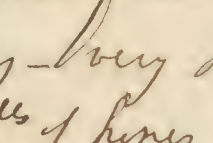
Warmth of Hives — Fill between glass and shutter — and shutter and cover — and in the bottom box — with — tan — saw dust — chaff — hay seeds &c from the barn — straw cut fine or any similar material

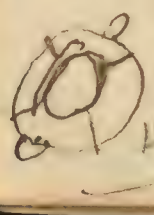
cut straw —

Wax — A great amount of honey consumed in making wax — Dzierzon says that 20 lbs of honey are required to make 1 lb of wax — Others state the amount as much larger — Weighing some honey in a pint tumbler — I found that one oz. of wax would store 1/2 lb of honey. — 2 ounces one lb — It would require at least 2 1/2 lbs of honey to make this wax — To feed a good article of honey with any reference to profit from I sale — must therefore be a losing business — Some very beautiful honey — very thick and was unusually thin gave I fall every ounce — 2 lbs of honey was stored in about 1 1/4 oz comb — The caps of I cells weighed about 1/10 the weight of the whole wax — This gives about 20 lbs of honey to one lb of wax —

Water — Consequences to I bees of a want of — Vid. Collins's Bee Book P. 104 also Dzierzon —

Jany 25th. 1852 — To day my bees were on I wing — noticed some returning for disturbed — opened one and found it full of water — The week from Jany 18th to 25th — was one of I coldest for many years — one day I coldest for 31 years — and yet an artificial swarm filling only half I hive was out Jany 25th getting water — kept in one of my Cement hives — double glass — a divider separating them from the empty space — no outside cover used — this winter has tested the hive — this hanging in water indicates I importance of a water feeder kept where I bees can get it without being chilled — at all seasons — if I bees are free as they ought to be from dampness they will want water in winter

Jany 20. 1852 / 31st — Water and honey feeder of earthenware — glazed outside — Let it be made thus —  1, is the honey feeder, — 2. the water feeder — 3, the place for I bees to come up — A piece of glass may cover it — or better — a piece of wood (o o) with two holes covered with a small piece of glass — to see when more food is wanted — and to put in I feed



Wax – In consump^n of honey to be made into wax – a large amount of oxygen disappears – Does not this produce a great warmth always occasioned by a process of comb-making? and wh. is necessary to a welding of a wax to form a cells? Wisdom of God seen in this –

Wax – by keeping something under frames in Spring – and when new swarms are hived much wax may be saved which will be of considerable worth – When worms are abundant it will not answer perhaps so well –

May 1st 52

Found fine (B.C.) for past few days seasons very bare – (28th) North-East – very cloudy – Sweet to get 2 miles – yesterday no more honey – bees got little to day – the day has been bleak bees very back to-day – for 2 days – bleak with "fallow cast" Made bottom feeder to hive which bees work very fast – much faster than they can receive – Hot three very bad for bees – warm hot to day – (29th) Rain from S.E. very strong – heat sun set – darker than rain – very fast rain in night – Sweet next year – last few days no drone – bees have got little from – bottom the hive or the stock yesterday (in consequence of having gone to cider mill last Tues.) were not strong enough to work out it last year – Hot clear cloudy – (30th) Cloudy dark – cool – wind S.W. – A queen hatched with in the last hive – queen has been slightly crushed in – Last night gave a young unfitted queen to a colony with queen cells – Having taken away most of the queen cells this A.M. found them built up again – queen extracted – one of her wings pinched off – the most have been confined by bad weather with appearance queen returned out – Cool – damp – sun bees on surface of water – Hot shivering yesterday – the rain of yesterday has changed the prospect for honey – it is now very fair – Dream – my father – Hot – cool – eggs – and before the bees got to much honey that you'll be a large amount of fruit – (31) at good shower last night – and a good one – The P.M. – hail out for bees – at three days bees – 4 hives – hatch eggs – (June 1st) Pr. – Hot – cool – A.M. –

March 31.52 – Piece of [illegible] or people used put in feeder ⊙ – to [illegible] bees from gum

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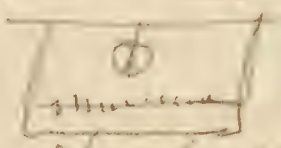
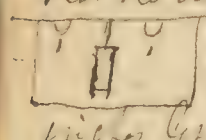
Water — Feb. 24, 1852 — I am persuaded that my water feeder will be of the first importance in promoting early breeding — When the weather is warm — bees will obtain water from the dew on the grass — but little and then of water feeder —

(Feb. 18th 1862) When the sallets are only 1/4" wide over there is a bump 3/8" in
Thistling bee — 1/2" deep — put a strip 3/8" X 1/4 X 1/4" into the trough with glue
or tacks — wedge it up close against the 1/4" strip — the frame will then not be kept in winter 1/2" or 3/8" higher up from the B.B. so as to give room below for cleaning out more easily than
fast bee hospital — If the Honey board is kept on it will have
tack or wedge at the four corners to rain it 3/8".

Winter Passage — I estimate after trial that my shaving sec-
Feb. 25, 1862 — tioned on a bee
to form cells

tion cut from three
inch plank — 8/1
cells the planes got devised for a winter passage I take it the best

Winter Passage — August 21st — 1865 — See Journal of that date —

Sept. 16th 1865 — I am delighted with the slotted winter passage —

bees do not fill it up — shall be about two cells wide — width of three
between cells — See Journal for August and Sept. 1865 — Nov. 11th 1865 — Think
that the width of slot should be about 2 cells — like it more and more — To get it without cutting

Suspend with tin same as shaving plane — a piece of cedar — say 4 1/2 X 7/8 X 1 — with a slot about 3 1/2
inches long by 3/8" wide — let cedar measure to bees over three combs — to expand — this for those who do not
wish to cut — some also to make combs straight by compelling bees to begin at the top instead of in
the middle — [illegible] the form of cedar winter passage — [illegible] before putting recommended —
18th — Cannot shaving winter passage be made as nice as cedar? — Think when a block nicely with a
slot hold bees together — a nicety hold to prove — bees will be to
expensive — See [illegible]

(March 1851) Mr R. C. Otter [illegible] W

Mr Ching leave — [illegible]

Mr. C. Blair — [illegible]

[illegible]

(General) — [illegible] hatched a few eggs — [illegible] sunned out — [illegible] hatching — [illegible] high yard (2nd) 44° — Before close warmed up — [illegible] when hens opened — by 10 A.M. — yard hatching got — [illegible] closed in and little dose — [illegible] complete — [illegible]

Monday, March) [illegible] Mr C. [illegible] [illegible] (3rd) 44°. Days when it grew warmer warmed moderately on close — Hovered nicely — (4th) 44° — Same as yesterday — (5th) 44° grew warmer for several days — [illegible] close by yesterday warm for today — [illegible] not seen to [illegible] last year — (6th) 50° — Sun after sun — cold, wind and clouds from the East — [illegible] little — [illegible] Mr A. [illegible] — the [illegible] a little — [illegible] queens today May 2nd — had from queen [illegible] one year — [illegible] — [illegible] 12 days [illegible] [illegible] queen — [illegible] fear for them — caged [illegible] [illegible] room for the queen cells — (7th) 44° — [illegible]

[illegible]

Winter linings be See interleaved journal i after Dec — also Di

Wintering Bees. A dark perfectly dry cellar the best place for bees in winter. It is desirable to keep them perfectly quiet — The temperature ought not to be below freezing — about 40° not over 50° A perfectly dark room will answer if not too warm — Unless the place where they are put in winter is very favorable — they ought not to be removed from their stands — If their hives are suitably constructed and thoroughly protected — ~~and~~ it will be a safer plan to let them remain on their stand — if stocks are strong and well supplied with honey — very great care should be taken not to disturb bees in winter — If they are excited to activity many will be separated from a cluster to chilled and perish — they will consume more food — and from accumulation of feces be less able to bear confinement without injury — If there comes a warm sunny day it will greatly tempt them to let them fly — Hives that up this at such time be kept out — The bottom boards of hives standing out should be dropped to expose them to a free influence of warm air — and this time should be selected to clean their bottom boards from dead bees & dirt It will be found that ~~when~~ many bees lose their lives in carrying out a dead — they fall with them on snow or cold ground and are too much chilled to regain their hives — If bees do not winter well — but are weak in Spring — but little profit can be expected from — Early swarming — or strength necessary for this — cannot be expected — Small colonies are most liable to suffer in winter — If an apiary is properly managed every colony in Fall will be suitably provided with bees, comb and honey — and none but such will be retained unless for a purpose of using them for queen breeders in Spring — unusual precautions must be taken to preserve such colonies — The use of hives with separated quilts enables a Apiarian to equalize his colonies — My hives are so constructed, as to be free from ~~that~~ a dampness wh. condenses on sides and top of ordinary hives filling them often with mould and ice — and often starving bees by preventing them from passing to parts of comb containing their store — The cheapest investment which a apiarian can make is in a purchase of good hives — If such a hive was to cost $3 it will be cheaper than a poor, thin hive received as a gift —

By Dec We —

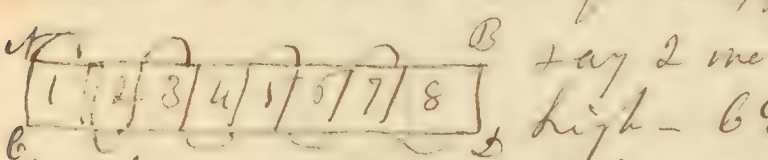
Winter Passage - See Wi - Per See - 2 (w) 17 (1869) =

Willow - The different kinds of Willow yield a abundant supplies of honey - and their growth should be encouraged. They afford a very early supply and are particularly valuable on that account - Keeping early then the other kinds - come after left Maples - before fruit.

Wintering Bees There can be no doubt that a dry, dark place neither too warm nor too cold is a best place for bees in winter If temperature is too high they will be excited to unnatural activity - and will suffer in various ways - if too low the motion wh. they will be obliged to keep up to prevent their warmth will require a large consumption of stores - If temperature is such that it disposes them to keep perfectly quiet they are almost in a state of hibernation - From these I am inclined to think that 50° F. with darkness - is a right temperature - If my views are correct a bee-keeper on a large scale - will find it very profitable to secure such a place for wintering his bees

Jan. 1st 1852 - I propose to put boards or posts or cedar bark against the legs of my hives - then to pile up earth so as effectually to exclude frost - then the external covering may be made very small - and the bees will winter well - I am not sure that the same plan will not answer equally well for summer - only then to keep a cool temperature in their hives - quite then from all danger of a sudden chill from air admitted below - and really as to guard them most effectually against a moth by entirely excluding entrances to the hive - without causing the bees to suffer from want of air - This plan appears to me increasingly important - The floating bottom board or this of course be most thoroughly painted with a Chio paint - or tarred, of a same kind If it was found that this plan did answer - the hives might be tunged around and one part so fixed as to give access at any time to a bottom board -

March 2nd 1852 Plan for supporting hives - A B and C D are joist or plank say 2 inch thick and A B ~~B~~ and C D 4 inches high - C D - elevated on stones one inch - to give a slant to the hives - The space below may be excavated a foot or more - and a side banked up so as to exclude heat or cold - All hives communicate with the space below - and are kept warm in Summer and cool in winter Where a situation will admit they ought to face as represented -



Worms — Mr. Thomas ~~which~~ keeps combs alive But B. cut of 1 reach of worms & glass sides against them — one worm will do much damage in a comb — their & mouldy matters do not seem to excite the anger of the bees so much as repel them of the mills —

See M. E. Journal — Aug. 1875 / Comb with queen still lost found in hive ready to cover out — hatched in a few hours — two days later — Bees leave hive — you hold that the bees recognized in this case the queen (15 minutes late) I had made a new split lost the bees stay — bees having a very fertile queen — hatched the cell — the other is cut and was never sealed — I must start in search for young queen feels a good fertile mother! the old queen was the best comb! This goes to demonstrate that young queens are not necessarily any better than old ones!! — This year cut with hatched (Sister) Cannot find the young queen — many returns — many killed — If she is gone not conclusive — It is very certain that just hatched queens are not nearly so likely to be fertile as older ones — Lay queens — and moderate for have Bees (they) seem upon "cleaning house" the 1st of this good for ten — cut for lower coming about two to fourteen days later than the other cells be very fertile to substitute — A queen caged for about ten weeks gave her likely was impeded in the flow of the 6th — the queen laying when looked at very early this A.M. — day in a bottom 2½ days — May not differ in the eye of queen when impeded but a difference in the laying of eggs? 1st (45) — Found a piece of drone comb building in a colony with a very fertile queen — not very strong — to fill a vacancy — away from brood — Found 2½ days later in the one hatched yesterday in colony lost fertile queen — Cells decide whether queen cages will build combs — Put a just hatched queen upon a comb of a strong nucleus to be very fertile queen upon some notice — Bees in the hive had it — or they took dispatch to see if it is — Gave to see natural a queen cage for a week a queen — under cage it when cage is opened — but it great quantity in the hive! In lay the queen to know you a little particular cells to decide on — has one day defective so that she did not with cells not be, to confirm — the other — Put some queen on comb of young bees with fertile queen — result the same as in the 1st instance — Some stuff to this in a large stock — sometimes A is good stock with infertile queen —

[illegible] Found no larvae green – the grey green [illegible]
[illegible] green [illegible] – and of the bed [illegible] 8 days in the hand – [illegible]
[illegible] very little [illegible] – Offered a [illegible]
with a [illegible] [illegible] – [illegible] 3rd day to have [illegible] [illegible]
[illegible] – If they come [illegible]
[illegible] – [illegible] – [illegible] – [illegible]
Found no [illegible] – All caged [illegible] – [illegible] [illegible]
[illegible] – [illegible] [illegible] [illegible] [illegible] [illegible]
[illegible] (10th) 50° – Middle leg [illegible]
[illegible] (10th) [illegible] – [illegible] [illegible] [illegible]
[illegible] – [illegible] – [illegible] (11th) 66° – [illegible]
[illegible] – [illegible] – [illegible] – Found the
[illegible] green [illegible] – [illegible] green [illegible]
[illegible] – [illegible] – [illegible] – [illegible]
[illegible] – [illegible] – [illegible] – [illegible]
[illegible] – [illegible] – [illegible] –

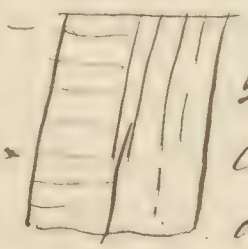
W Flushing — April 2. 1851 — u Journal —

April 2 — Examined five stocks of Italian bees purchased by Mr. J. B. Parker — thought with the original guess — hollow sections of trees — Only one contained any bees — Dead from want of stores after they were landed — put in green house — they died there on glass — fed them out of doors so as to attract others — One had a black queen with dry nectarine bee — Three had starved — The one with living bees had left them a point — seem sealed hard — (3rd) put the hive with live bees in a dry cellar until I could transfer it — 4th cut out the comb — found a living queen — cells had a few eggs — never handled anything in my life with so much care. If the queen had been killed I could have felt more than any species — felt — for they seem to have reputation — just when I almost despaired of finding a live queen, altho I had seen some eggs in the cells I caught sight of Italian or Ligurian royalty — Strange that so small a creature shd be capable of producing so exciting an effect — I carefully put her in a queen cage — cut out the only comb that had any held, and put the whole colony in the cellar — 4th I was very anxious fearful that the queen might become chilled — found that the bees had left her — took her out of her cage with fear and trembling — She was stiff — could hardly move — warmed her with my breath — returned her to her colony — 5th Colony kept in cellar still 6th — Do — 7th Transferred a colony of Common bees — removed queen — Rather amused them and they have lay in friday out by gen. was gone — gave them Italian in a cage crowded round it — Gave Italian sun not gen in cage — crowded round it — Set common queen out — missed her — Found that she had gone back to her colony — seem sure set out Ital. queen — very carefully — bees welcomed her — think I have done all I could for her — and many fatherly care be rewarded — I might not be here but the common queen out of her cage — but did not think that she would take wing — 8th Put hive with Italians for safety on roof of piazza — thinking that if bees had been gathered within a week — weather strong — multitudes of bees died — within hive — crawling out! faint — faint — faint!! 9th Removed hive to another location — bees still [illegible] — [illegible] more have died — 11th — bees doing very well — queen all right — [illegible]

12th – Gave Italian and connection to Prof. Hyman of Cambridge for examination –
13th – Left for Greenfield – 15th – Presented to the dear people in Lebanon –
14th very cold – severe freeze at night – 16th – at little town – 17. Left for
(Flushing – 18) – Spent day in city – looking for a vessel of steamer strayed in the
further importation of Italian bees – Left city for Flushing at 6 P.M. – Mr
Parsons received a telegraph stating that the strayed would be at the dock
at 9 P.M. – we took a private conveyance to Hunters Point – thence to
New York – Reached steamer at 10 P.M. – The German Italian with the
bees respects family of them – Fled 27 in small cases – all put up very
two many sawdusts to let in light and keep bees in a constant ~~[illegible]~~ –
Two said to have the best queens from 140 queens were Bell & the
bee-keeper in his constant charge – weather bad – head winds – bees
sick – last two days many died – The two alive spoken of – one
lively – the other "sick" as the Italian said – Tried to get them off
that night to keep out of damp and air – could not get a permit
for them to leave – ~~Returned with~~ Spent the night with Mr Parsons at the
Astor House – went to bed at 1 A.M. – rose 1/4 before 5 – Rested very
hard all night – went to steamer – got my two sticks – started
for Grand St Ferry – rode up in Brooklyn Bridge to Hunters Point – came
in ~~[illegible]~~ a few minutes of midnight the flushing cars – The stick gave
no response buzz – Stood it before breakfast – all seemed dead –
Stunned – not sick – Said them out in paper – a few came to –
greatly took honey – found queen alive – greatly took honey – put her
in queen cage in M Nine other bees – seemed very lively – Opened
the other box – bees lively – flew at once – (the weather charming for this)
found their queen alive – they looks sick for – Stunned two sticks
returned ~~[illegible]~~ of 1st to the hive – put it in a new place – gave
No 1 Italian to the bees when they missed their own in a cage –
feasted them at once – Did not see Queen – if secured charmed stick
that she did not come out – when they missed her gave Italian No. 2 to No. 2 in a
cage – feasted them – moved old stick to a new place – Set out the queens
and they were well received – Queen No 2. has bad knots to her feet –
Jean for her – Queens cells in box – No 1 – had a small piece of new
comb and sug. a egg in it – no honey – No 2 – had a superabundance
of honey – very few dead bees – Queen of 1st Italian stick hatching had
begun to lay – bees have been fed – have built new comb – saw her on this –
The young queen No 2 – with German Jean cage – stick gone – the get

out and flew — caught the gently buzzing fly with a twist of my hand — my manner
escape — If had imprudently came she might have been too far gone to have been
revived — Or what mischief longer infant events move — Hope I could have gone
the race for three few days — Raised queen — drone bees — unfortunately her eggs an=
hopeless — Have raised queens for them to — 19th At 2 P.M. (19) Mr Budman. The Ita=
lian bee keeper arrived with the balance of Italian bees from Steamer — The way the
bees were put up for the voyage bad — If the passage had been 2 or 3 days shorter
most of them might have arrived safe — In some boxes the combs have been so had
moved about so as to crush bees — the queen was force crushed — Two queens with
only a dozen or so of bees — one was in small — revived — and became fair — but
died in the night — Of thirty small colonies — here only 7 living queens! —
(20) Drove a common stock — made two of it — gave an Italian queen to one
in a queen cage — One of the queens going yesterday — was found to be outside of
the hive and unable to walk — She was minus one leg and the claw on another
intendeth I gender to the fact that she could not hand bees on comb —
Indeed the leg had left off from the comb — Mr Budman gave an Italian queen
to a small number bees in a small box with honey comb — took it to a
new place — All quiet last night — Mr Budman does not approve of my mode
of giving Italian queen so soon — He thought one queen in this way would
wrong — feared no queen — it did not act like a queenless stock — (21) — The last
mentioned have offered to be all right this A.M. — Neither very cool and wet —
(22) On Saturday the cage with the Italian queen fell to it which
Mr Budman made left the hive queen lost — The same day he made
two more stock colonies and gave them many more bees. All right —
This A.M. looked at the 2 made that he feared was wrong — all
right — beautiful queen — bellissima regina — good — very good —
happy — very happy!!! Never saw a bee keeper so very much delighted —
says it is the best queen out of 140! The city I escaped from death
by starvation — The days hitherto at first be no bite my bee — but now
every day — more — more — he no give Italian — German (Dzierzon)
bees any more — When he came he thought this "cold country" kill them,
and the common utensils — Made up his mind stock to put to it an
Italian queen — I have no doubt but that stock bees can always (few or many) be
made in my way to accept of an Italian queen — (24th) Sat — Bees from Mexico,
arrived with Mr Long and my son — were put up — came safely — 25th Sunday —
Not — Occupied with the bees — 26th — Bees in the A.M. — Nearly all
my returns found "bellissima regina" dead — no eggs laid by her — and

royal cells & tarlet – sep. 22 3 Vit in my fish – the weather very fine a
queen that I intend for the pair of death – cold to die with it laying –
Weather fine all the time bees & some eggs – (27th) There are X a
few eggs in hive of "Ellipina" – but the cells initially in perfect health – To day I
introduced the first queen that came to one of my hives of old fellow. It
had a powerful stock of bees – one drone was released – I drove out queen and
all the bees – and gave queen with her escort to the comb – pulled the drones
and put drone comb with eggs to choose – This stock to have plenty of drone
comb, bees – and not to be meddled with – intend to drone raising – all
the four queens are apparently safely introduced to strong stocks (28th) Wed. Mr
Ebey appearance favorable – weather yesterday and to day charming –
bees seem to be doing well on dandelion and clover – Mr Langstroth
going on with the transferring of bees to my hives – the flints are just ready –
that a female might and quite warm to day – (29) Sabbath – (30th)
Stormy – ~~31st~~ (1st May) Two nucleus to which on 9 stages
had ~~a few~~ two pieces (to each) made of 2 lb. lice hive had
been given – one leaving each about 2 days queen – prepared three
spare boxes for queen raising – as I could not find enough
to make better advantage – and very easy to feed it in the
three frames – 2nd May – Still stormy nothing can be done
with bees – (3rd) Was away to day from Worcester – found
another Italian queen – sealed queen in the middle
of the hive – Why the stylent? I fear it much from
May inclement – To night have fed honey and syrup
all the Italian stocks – Slow hope for the best – as I have
now a number of stocks (nuclei) with very queens and the
same Italian drones – (4th) Just been clear up for one
month – splendid day for bees – cleaning in blossoms – performed
(3) stocks – one had nearly 1/2 drone comb – Put a large
piece of drone comb to a stock with Italian queen – (5th) Beautiful
day – 4 stocks transferred – Bees get much honey from clover, dandelion,
fruit – Stocks with Italian queens are to day working very power-
fully – Examined the nucleus to which I gave Italian brood – 4 sealed
queens – two so close that they cannot be separated – I have next week
make three from the one nucleus – Operations to day very pleasant – 427
(6th) Sabbath lovely day – bees gather much from blossoms – (7th) Very

numbers gathering much — 4 stocks have frosted — nearly gathered honey very thin
and very abundant — runs out of cells — a makes it more difficult to transfer —
Took out one sealed Italian to give to a nucleus removing black queen — took
from them their unsealed queen — gave them to the stock long there sealed
Italians — also gave some of their brood — want to have the jelly to use
to make nuclei accept Italian queen in such cells as I have designed to —
Feeding has been done too much in open air — too many robbers — there take
three cuts of "entrance-slips" in a very short time — If it proves the wood are
dried down too much see — put what we want — Italian says that in his
country not so ~~[illegible]~~ yellow — (8th) Made a number of small boxes
with cards in frames for nuclei — have a hamper stock of black bees —
gave them cards to other bees — also queen to a queenless hive — Made one
of my hives queen —  Transferred Italian queen with stock into it — She
was a lovely — Italians want her to lay in these small frames to make
nuclei with that — any catching — I prefer to cut out a comb to take
hard cards from one and during bees will make to the other — Re-
made several nuclei with some of the brood — Also made two from sealed
Italian Queens — Found one cell was taken off other — left that and two
others — Gave bees of frosted stock to form the nuclei — Gave more bees to the
Italian Queen in the queenless hive — Found an Italian Queen hatched in one
of my nuclei! First one we have had born here! Could hardly contain myself
for joy — Mr. M. Baldridge and Fr. E. Parrott were present when I opened —
The bees pale — but of beautiful size and color — Took out the two sealed
queens so close together that they could be separated — and gave them to another
nucleus — (9th) Rainy — yesterday cloudy and cool — Examined nucleus with two
Ital. Q. cells so close that they could not be separated — one hatched — light
colored and weak — like the one seen yesterday — cell of other opened on the side —
queen alive but just so — some chance gone — Stock has opened her cell — young
queen not strong enough to do it — As I looked at this nucleus just before Christ
and as young Mr. A. M. was I cell — did all I could to save both — In
hive which had bellyfull of queen cell where she died — found third. Of five cells
from which queens had hatched or were killed — worked to open and cut out
these cells yesterday — but Mr. Bodner was unwilling — do not know how
and he had lost the count of time — and did not feel the importance of cutting
out these queen cells yesterday as I did — 426 Opened another hive and found hatched
Italian queen — another ready to hatch — removed hatched one and gave her

a nucleus — the new queens are very light and young — very different from those being in running bees — their colors were deepened even though very young — except the one I took out of cell — nearly dead — that has no distinguishing marks — P.M. — One of Mr Bodmer's nuclei put to an Italian queen cell has abandoned it and the bees gone to a neighboring nucleus — cause not clear to keep the nuclei so near together — I have two of my nuclei with hybrid Italian bees queenless — gave them some from a frame of transferred bees — bees near night in one of them very uneasy — fear for queen — Mr Bodmer night in going from plenty of bees at the start — danger in going more — need perfect thoughtfulness with feeding bees — Have used jelly from a black queen cell — to put in a queenless cell with Italian brood — to see whether I can deceive the bees to make queen cells where I want them — Three more stolen bees and Mr Bolger's bees count if not bee enough to pass on the title of transferred comb — bees not working well — edges of comb very black and not pared off — bees discouraged as their comb has gone old — Tylenley Lot Pearson [illegible] quarrel with for holding the white in place — Much of white bee [illegible] — (10th) Heard the two hybrid Italian queens to which I had given my bees on night of this at P.M. — They stick here too fast. Before I take them home give them just hatching brood — Each one receiving Italian bees stolen here are Nos 2. infected by a common disease — so that bees can be seen in the appearance of the spinners brood — (the cause for ~~to have~~ coming) Italy chosen) also some of the combs from the original queens so that bees have a proper standard of comparison — (10 P.M.) Found old pattern hive of mine to which I gave the first Italian queen — found capped chrome brood — it is now all stolen of original queen stock dead — gave upper box with frames — one with empty comb — second also last with directions to keep it to the hive — 8th Queens — have the queen they come above they will keep below mainly for brood — This stock becomes abundance of chrome brood and cells are made on the Italian chrome checked on the frames — Fixed as a pattern — how to keep in common chrome — Removed cells of Italian comb and stock bees comb (see Dw) Gave to a nucleus two small frames with Italian queens from Queen No (2) — hybrid one by Mr Bodmer — all my three hybrid queens are from No (1) hybrid one by Mr Parsons — Queen (2) larger than queen (1) — Must get chrome brood from Queen (3) and some nuclei or means of raising a few queens from her — Then raising fully (see May 9) bees out — Must quickly as soon as queen cell hatches —

(11th) Yesterday fair in P.M. – Did not get my nuclei out of cellar until late in P.M. as I was absent – Two of them seeming Ital. Q. seem failures – Same luck to Jack – have not been able to get hard jelly? Mr Root has made some others – Must now make two queens on Tues – one from Queen No 2 – other from No 3 – There were give me queens to take home and with them hard taken also – all right – (12th) Found the two seeming queens right – one cell was broken in doing so – bees destroyed the other – 4 more transferred – Ital. queen cell has a dead queen – also two others – Shortening my nuclei in bees – two may leave for old home as he has not bees from a distance – Have disposed of them for 35 cents – giving interest – Formed two more nuclei with Italian Brood from queen No 2 – These take my drones from Queen No 3 – so as to have no queens impregnated by drones from a common mother – Hope I shall get the original queen – as two more are affected by the 14th and 18th – (13th) Bullock day – Heard Mr Reader in the A.M. (14th) Quite warm – Steam Heater in – Pretty quicket life – no bees from Hancock! no letter from Mr Parsons! Called suddenly to Hastings to see my nuclei and bees with the checkers has to put them out from cellar – (Set them at night to front valley) (15th) Reached Hastings at 5 P.M. – Constable gave Okeson on my Patent – Found a few more that I have not changed away any renewal! Bees in order to – Not thought that unwittingly Had – 16th – Found my nuclei Had not been set out in their proper places – queen cells destroyed – and for the life of me of my Italian queens – not hatched for the last (17th) At home at Forest – Wind N.E. Bees fly some – opened original queens hive – found very much scaled drone – removed some for a nuclei – with a sealed queen; no other queen cells – saw queen – was colored but not so large as the others – Saw two of my first hatched Italian queens – one has not been – formed two other nuclei with Italian brood – All now promising well – in a few days many Italian drones will be in the way – (18th) Wind since N.E. has been Easterly most of the month – cloudy – rain – Received powerful sketch of Mr Hicks a few words from Mr Parsons – very great quantity of drone brood – very many hatched drones – Took a young Q. from original hive (Q. No 1) – Hive began to lay – impregnated by a black drone – formed a nucleus for her – Made two nuclei with Q. brood from Queen Hart III – Part of these queens, has many hatching Italian in them – (19th) Rainful

day – Examined all my nuclei – (I) has 9. 2. laying – tested under II. 9. 2 – III – Gave
9. B. to raise a queen – IV – Has 9. 2 – (V) ~~Gave bees to queen~~ remedy Has 9. 2 VI Is removing
9. 2. VII – Removing 9. 2 – VIII. Has raised 9. 2. for 2. dol – All queens to be
[illegible] – (20th) Lovely day – heard H. R. Beecher – (21) Rain – Still Gentle at
night – aurora – Heavy lightning & rain – Great thunder in S. W. – (22) Cloudy – clear – bees are working very – nuclei especially – queen taken out
second day from original queen has hatched – Have three queens from the
same nuclei one quite dark contrasts with the other – Put original mother
with bees to prevent early swarm – Gave bees a comb of honey from
frame of cell built in long – The queen cells seaming – The nuclei have
reign for about 4 hours – and we can always be sure for nuclei – also saw left
side of bees having off drones & dry sealed drone cells – The nuclei also laying a few
hatched drone eggs – Had Mr R. Litt and lady to visit – Judge Shannon came
to see Helen Bees and the practical working of my hive – (23rd) Played checkers
with Helen Dwyer and tried for queen, gave to go to Orford – (24)
Opened Hives in Phil's at full queen disappeared – Left at 11 P. M.
by Orford – (25th) – Heavy wind bees working very hard – 10th hatched
home at noon – Found a queen on the bee – On the cover out in a
few minutes – Hived back – after to the most together – Found that
swarm came off the 14th – Lose a day bees & found queen
gone on Helen's swarm – Some of the bees fan – Found that
the queen mother in Phil's had gone & her young queen out
with bees hatched – Some of the bees & they matched – gave cells hatched –
(27) – Warm – pleasant – Left H. – 28 – Found a swarm – The queen
had laid eggs in cell queen – All hatched out but one – Left
cell among drones – Threw my cell among queens – then left
the hive – had been much disturbed – Just the back – 29th Had
an excellent swarm for 2½ hours hive – Cover not fast enough
bees – gave Helen Dwyer first in cage – Mr Litt – bees
found her – fast in cage – Mr Litt – bees
in cage – Mr Litt left for Orford to
be by to get the part of swarm to take home – bees very
anxious to find fast get to Helen – fast in cage – by release
to her – Helen should she be confined – Kept 3 fast in a cage
cit. not fast bees! bees acted as Hyb queen – fast did not
unite – Clothes in fast from in Hollow & bees did Hate
queen go – Left it dark bees in cell for another 3 hrs 22

[illegible] quite [illegible] not active — [illegible] [illegible]
[illegible] for to-day — New year — (30th) Magnificent clear bright
last night — [illegible] quite cold [illegible] — [illegible]
[illegible] 92 — [illegible] — [illegible] [illegible]
[illegible] — [illegible] [illegible] — [illegible] [illegible]
[illegible] — [illegible] [illegible] — [illegible] [illegible]
[illegible] — [illegible]

[illegible]

[illegible] queen — the worst thing and I will give the moment of [illegible] [illegible] — [illegible] — [illegible] —

Young Queens – Have found out this season (1852) that they often fail in their first attempt to rear a young Queen – They often attempt many and rear none – find they do better with a second set of hand comb – (guard cultured)

Molasses – Some green in a bag by the last one & three cast – the bottle was removed – took out bag & put in another hive – set it in place of old one – New nucleus made by taking young queen with some of the bees with the hive put down for a cluster in another hive – Set up 24 hour after cast enough – Find no eggs in upper story of new cast –

(15th) Never saw so many bees working on the red clover – Many more on red than on white! Some with bee head – some only bag! They seem to prefer the head that are nearest of blossom! Can they get down to the bottom of the bag? Hot the long daylight & the exceedingly dry Spring make any change for the better (for bees) in the red clover – Bees on the clover in the middle of the red clover – Bees on the clover – Hot weather – Hot long enough for young queens – (16th) Hot weather after the dew has taken wise – What bees seem from the bee & what bees for others – Saw no green in cast this year! Put one bee to a small nucleus with unfilled comb – Hot bees seem to cast a tree – (17th) Bees very busy yesterday on the clover and raspberries – Swarm put in Hive – (Aug. 6th) On a flower when cattle bag hot bees may be found (8th) Weather some cooler for last week – for 2nd time cast put the old one in place of other hive – Some of bees have swarmed for the second time – Bees for year of 1852 – Not to be taken out of hives – Bees in this neighborhood have swarmed very little – Scarcity upon some the swarms stole night – (19th) Bees working pretty well – but weather too dry – a slight shower last yesterday evening – Moved for Dr Powell of Little Rock – 7 swarms by driving – Put most of the white sticks in place of smoked strong sticks – Set off frames to the west – Made two

Mr. from Old Ben, finished by myself — The Stock Yard very busy on
hogs — Lately very Steady of the Jonly one left — Y
Bedlam 3 of the fresh Hogs — Dead Hog — One left out yesterday
one died of Hoffman Hog Pen by the side of one hogs — Stock
Hogs the four made Slightly cos Lady — Some Trader in for Hogs —
Mr. Nelson in Horse — Very Little — one of the Stock Farmers
and fellow stand of a little Wet very heavy — Gen. Hewitt Green
for pure bred (1/2 Hogs from Mr.) — Mr. Green forward of very
Wet Ben Cold — Much fault today of the Colony that it has not
Not much for day for Money — Mr. Green that the Farmers could
gender with for to refuse hundred of Ben — discourage Mr.?
Might not this fine to Ben? [illegible] Only 3 Stock cost office 3 months — Ben
one day I will Ben Wet Stock Ben — Let more Stock out cost —
(21) The Ben very dry — Ben do not seem to work much on Sunday —
Next to Lodge Cows and Stock Ben Farmers for Dr. Pierce
One person made Ben day ago Farmers make some cost to
many Ben from the Colony Farmers Ben had gone in — Ben Mr.
Sec. Stock go to the Office — Ben the one of Ben Ben Farmers —
Made a Ben for the Hogs — Cows for — The Stock Farmers
Ben off Ben — Dr. Ben Farmers Ben Stock to the Ben Farmers
The Farmers off the cost — Stock — Ben Ben get Ben Farmers
Ben off Farmers Ben Ben Stock Ben off — Ben Ben
Ben Ben Ben Ben Ben Ben Ben Ben Ben Ben Ben Ben Ben Ben

Y

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[illegible]

[illegible] Mr Pike [illegible] Mr Pike [illegible] Mr Pike [

Bees on the Island

Sixth Brood Brig — June Thursday 3 —
Left just hatched in — when removed the lid going — flew down
to bees — hatched in — put frames up and Dipped
gave to bees — they lick it well — If any more bees made
it was not sending bees to a strange stand — Bees in Dayton
have gathered very little honey — very different from 29 — Bees
working very little now — Cloudy day — 31st — Eggs of Black queen
lost on the 22nd in hatching — Bees from Dove offer dark — Very hot
wind day — bees gathering but little honey now — July 1st Sixth — very hot
and very dry — (2nd) Hot and dry — Black & other swarms out — Bees
for the long few days gathering — most violent to end — All the
hatching of queen bees closed — offer good — (3rd) very hot — dry —
in the night a very powerful rain — Strong nucs 4th — Hot dry —
all swarms — Black queen from Milan — bees begin to lay —
Took out the queen cells for the one ready Hatches — Cut and
clipped wings of queen bee in cock — 5th Rain — warm — Laid
the queen hatched — She is of black color — Her mother was white
was bitten the in fighting I drove — (6th) Fed my nucleus in a
few minutes one stock with Hot. I. and very bees which seem
for command rolling — while all the other stocks are quiet —
this very active — see them at the entrance of the hives —
on Hot stay in the P.M. as I was opening the hives — (7th)
Hatches in cut and clipping bees got nothing — In I I. helped last
night — for the eggs of one fight (two bees fighting) to another stock — and
found which came a very black queen — hatched today and they hatched
this queen quite feebled not quite so yellow as some I have had —
but may be like her mother which was from one of the Dove queens! This
stock one and very yellow one — shew — What to see a healthy queen is not
enough to prove colors in mother — Had a queen hatched this stock from
the eggs of one lost two weeks ago — she looks very yellow like
her mother — but the under are yellow — the two that had been with an
I drone (Aug 1st) — It is very to see how one kind of swarm an hatches —
A BAD

12th — Bees idle for some days — A queen hatched from the 6th cell
in Hive — [illegible] — [illegible] — Hive had
some other queen — 13th Bees very busy with S.F. Cirsium [illegible]
I feel have found little other bees specially for coffee — A few
days ago we had very few bees — [illegible] — Swarm of them attached [illegible] 15th Young
Z queen comes from Flowering — in the top May drawing [illegible] dead
& dying — Strange — queen [illegible] — Queen in the top May [illegible]
cell up & found [illegible] — May [illegible] [illegible]
I gave her to Mr [illegible] — Mr [illegible] queen cage was left in
hive fed & dark — [illegible] — [illegible] — [illegible] — [illegible]
small [illegible] varying queen — [illegible] — [illegible]
several times and they attempt to [illegible] — [illegible]
the cells [illegible] probably [illegible] — I then [illegible]
[illegible] to get [illegible] — [illegible]
pt 9 Dr [illegible] to day [illegible] — [illegible]
with — [illegible] — [illegible]
and yet [illegible] for the [illegible] (August 2) I have [illegible]
made [illegible] attempt to give [illegible] from Flowering to the
[illegible] of queen — would not [illegible] — [illegible]
[illegible] 3 queen cells —
one [illegible] good color — another quite [illegible] — [illegible]
the top [illegible] of the little [illegible] — How [illegible]
queen [illegible] by [illegible] — [illegible]
moderate — 3 quite [illegible] — [illegible] — [illegible]
[illegible] — [illegible] — [illegible]
Before [illegible] — [illegible]
queen [illegible] — [illegible] — [illegible]
[illegible] — I — [illegible] — [illegible]
common [illegible] — The bees in 1 and 2 have all [illegible]
colors for more than [illegible] — [illegible]
a few days off — Until after a rain — had no [illegible] [illegible]
[illegible] — [illegible] — [illegible]
[illegible] — [illegible] — [illegible]
[illegible] — [illegible] —

May 4th 1852 — The zinc for covering the wooden tops —

Many days have elapsed since last (Feb 25th 1851) Bees last yesterday
time since Feb 2, for Marking — Still time fodder in keeping to give
them to a very liberal supply of grain — Before last was gone to them I
offered them a warm place, they looked fully — all dead except the
few very cold days the bees in Hives frozen — Number
uncovered to test with fahrenheit as in Hives — Many of the
bees have been gorged and out of their cells they have taken
Still fine days again after them one small stay in gorged — Day
of this kind have the very cold days been like the Sheep
the Hives Molasses stock dried enough to boil — gave the last
some long for the hornets — Bees are in good condition but not
very strong this Spring — no bee head yet gathered — cleared the
inside by — honey boxes sheltered to stock by it not cut — the stock in
old by hives being fitted with early due — (27th) 57° — gave rye flour
on comb in open air — the stock strong had not the strongest scented
to take some of rye flour — Bees got some sweets — (28th)
68° — The stock that took to much flour very fine honey in
ice head! Some sweets gathered — On the 28th saw a green
grass blade — (March 1st) 72°! Bees found honey in some combs
not in use in Hives — have handled each other with a little
— Bee bread kept in — rye flour stock taken — some honey —
bees at work on rotten apples thrown out — Weather very warm —
(2nd) 71° — Bees got honey and ice-head — (3rd) 67° at 12 m — very stormy
at P.M. 47°! (4th) 32° — very raw and windy — (5th) 20° — very windy —
(6th) 32° — very cold some — (7th) 24° — (8th) 50° at noon — very windy —
no fallen 34° at 9 P.M. — Snow falling fast (9th) 26° — very raw, cloudy
day — (10th) 22° — raw, cloudy, snow flurries — (11th) 26° — 40 at 2 P.M. —
(12th) 40° at P.M. Bees got honey. Saw some dead flies on
the hives — have seen in fact dead for so the three weeks — Have
a dead layer grown — May have got a mother from Taylor — and have

[illegible] bees seem to be more on these leaves — and therefore in comparison [illegible]
they also lay in other [illegible] — in clusters [illegible] — [illegible] of
this P.M. — a green tree hanging i of Dayton for an full-blood Z
Italian — Not a long day for hay — bees were very much disturbed
running off they off for a glass of beer 11 cents — At last saw a
nest of bees coming on comb! took it off with green carpet
in bee-bee skeep-hanging — gave the bees — queen & bees
released but partly (?) [illegible] and off in [illegible]! Same
appearance as the one noticed on my [illegible] in Mexico —
(13th) 45° at 7 A.M. Wet & Rainy — cloudy and cool towards night — tem-
[illegible] Mr Root says [illegible] in a field [illegible] for a [illegible] of bees —
(14th) Sun shone last night — [illegible] cloudy — [illegible] very
warm — 36° at 1 P.M. — Mr Root gave me an Italian queen for an
experiment (can [illegible]) — [illegible] — [illegible] — but [illegible]
[illegible] Italian bees to work — [illegible] leg [illegible] [illegible] [illegible]
clear — [illegible] very few Italians in hive — [illegible] [illegible]
[illegible] high — [illegible] [illegible] [illegible] [illegible] [illegible]
appearance that their moved! [illegible] [illegible] [illegible] queen cage
[illegible] [illegible] [illegible] [illegible] — [illegible] [illegible] [illegible]
of my class (the strongest) [illegible] [illegible] [illegible] [illegible] [illegible]
It is [illegible] that this queen was impregnated by an Italian drone
(15th) At morning my cut-bees did not cluster towards night
much about queen-cage — hung it low into hive — Set out in afternoon
when thermometer was 40° — at 5½ A.M. 20° — bees clustered much
at 12½ — (about 24 hours from the introduction) removed cork — the
bees went out — bees much excited — In 4½ hours examined queen-
cage — sponge all gone of honey — saw some bees clustered around
two corks — they had killed them — were they those with queens? Saw
queen — bees seemed to be rather more clingy than usual — but seem
satisfied all right — and this the way to introduce the queens —
Bees out some — but yet no pollen — the weather too cool — (16th)
39° at 7 A.M. — 54° at 1 P.M. — cloudy — bees out some —
(17th) 30° to 34° — with a freezing wind (18th) 7 A.M. +12°
2 P.M. 20° — 4 P.M. 25° 10 P.M. — 22° — 19th 7 A.M. 15° —
12 M. — 34° — Breeding in some hives almost stopped — Gave
strongest Italian a drone comb in center — Italians appear to
be much more easily excited (20th) 7 A.M. 30° Snow last night

7 and some feeling 6 day 48° P.M. cloud off east — (Sun in
Mirabeau) 7 P.M. 25° — (21) Dense snow last night — 1 foot
15° — (22nd) 24° at 7 A.M. (2 P.M.) 45° — breeze from south shifting
from S.W. — (23rd) 42° at 7 A.M. — Rain in A.M. — cloud and cool
and very windy (24th) 29° to 44° — P.M. bees flew nicely and fish
[illegible] — got some pollen — first for 3 weeks! (25th) 38° to 55° —
[illegible] by 9 P.M. sky clouds — Took [illegible] for bees and
a few eggs and fed them in [illegible] — Bees
fed [illegible] — 26th [illegible] — Bees
day before yesterday [illegible] — [illegible]
[illegible] — [illegible] — [illegible] — [illegible]
queen back to her colony — she had laid from eggs in cracked comb
they carry — warm sun shade — 27th [illegible] — warm shade
first — cloud off east — (28th) 29° at 5 P.M. — [illegible]
bees get to head to the clover in flow — [illegible]
[illegible] — [illegible] — [illegible] — [illegible]
[illegible] — (29th) 54° at 5 P.M. — 70° — very [illegible]
S.W. wind — [illegible] — (30th) 42° — very mild cloudy day — not a
bee out — (31) 32° — 50° — [illegible] — [illegible] — [illegible]
at 7 P.M. bees run from S.E. — [illegible] — [illegible]
[illegible] — April (1st) — 45° — [illegible] cloudy [illegible]
(2) [illegible] — [illegible] — 60 P.M. — 50° — [illegible]
(3) 32° — [illegible] — 64° — bees active — greedy for eye flow they get
some pollen — [illegible]
[illegible] — [illegible] — [illegible]
4th 42° — 66° — [illegible] S.E. wind — bees get redder — greedy for flow — [illegible]
cell and two under sealed cell — bees come out to [illegible]
5th — 42° — 66° — [illegible] — bees get some pollen — perhaps a little
honey — [illegible] — (6th) 46° — 52° — [illegible] — [illegible]
bees fly fed daily as the [illegible] is little to [illegible]
64° — Sunny day — bees busy on flow — get some pollen — [illegible]
the [illegible] of April season — (8th) 50° — 57° — Heavy rain — almost [illegible]
waves — drains discharge a large volume — (9th) 46° — 58° — 42° Rain during the night

[illegible] — [illegible] — [illegible] — [

much honey — great amount of bee-bread — some brood in another stage — some of the cells affected the
Zone Bee-bread from of bee-bread — (23) u 84.80° — very windy but bees gather
well — after much other drumming out stock from the big hive — hive
hills on two buckets — other very bees in it — saw no queen — gave to the bees
gray queen bee from Dayton queen as I saw no queen — and colonized the
other two — gave a fertile worker — the bees enjoyed — and in a few
days took her out — put her in cage — spilled a little syrup on
the stopper — the bees released and killed her — [illegible] bees and
put in the cage — gave a single queen cell from the other hive
hive — this cell the bees seemed to be ready — took out Dayton
queen and put her cage in the bottom hive — colony as
small as — queen has one claw gone — gave the cells to the bees taken
from the old box — Dandelions appearing — and apples begin to blossom
pears and plums in full bloom — (24) I find my queen dead — as soon as
the bees from old box got hard they at once began to build up quite
fast — the many in last of a day then for weeks before this —
heavy shower last night — wind S. W. moderate, then clear cool —
49°.00 — very strong S. W. wind — bees dressed trees about
the farm — old box very active — bees will have been able to fill it up
(25th) 40°.72° — Slight frost in low places — beautiful day for bees
apple bloom in full bloom — In the bee house [illegible] stands of bees
Bees nearly ready to blossom — No queen started yet in cells given to the
bees from the box — Hives in good shape — Saw a bee hive in the woods
my way to Sulphur when hung in a tree — cut out a piece of comb for
[illegible] — cut out bees of this stock bit — not to see the color of queen
given this queen — She is a very handsome queen but not equal to her in
seen in color — her bees often to be the finest colored — (26th) 50°.76° S. W.
wind very strong — bees work well — Carried nucleus to Dr Hill and gave them
[illegible] honey — (27th) 62°.76° strong S. W. wind — bees work fine — nucleus at Dr
Hill has five queen cells started — [illegible] how [illegible] prepared to
Mr. M. Cary — for [illegible] his bee queen — has four capped queens — two cells are
each of the old hive — I find that part of the [illegible] frame
[illegible] — bees to be [illegible] — [illegible]
[illegible] — P.M. — put two of the colonized queens in the
colony from old box which had started queen cells — Took up every the comb

will have to D Hill – but some of his bees are very in the comb having 7 queen cells started – and put the Cyprian bees in their place – Put the 7 queen cells with young bees here – gave them their brood – 2 days work to prevent swarming – have killed – added more bees for bees stock & the mother cut out & then left – Took out the other comb with Cyprian bees and cut down the bees – the bees left will be too small for queen cells – Gentlemen! Gentlemen! the comb with the queen cell – Colonel – take away the sealed queen cell & the bees up with the bees of the hive – the cells in the old and young bees in the trough – that my apiary now is secure – queen cells & the bees up from the Cyprian stock – the stock in the hive – the bees up with the queen cells – the stock in the hive – the queen cells of the Cyprian stock – (98°) 44°, 64° – 12 P.M. bees right out – best beautiful day – wind N.E. – a few bees – queen cells – bees in Cyprian hive – cut down to queen – (29th – 40°, 72°) – the Cyprian queen cells started – the Cyprian queen is coming bees forward – Flight for mine – the queen from my best stock have supplied the queen cells – the Cyprian queen cells started queen hatching the stock (30th) 46°, 62 – 8 P.M. last night – cool and pleasant flight – yesterday bees in the hive up in the morning – very lively – not many with flight – bright – master stock in a master hive by itself – queen fed 85 cells – to feed in feeding with a stock of his, left behind – Italian queen – and to be called the cells for me and take his bees – 2 queen bees – cool – bees lying stock on a Cyprian queen – [illegible] – 8 stock only one Cyprian queen – white (the queen best) – bees – [illegible] – Gentlemen pretty – cool – it is when too cool for the swarm of bees – apple blossom – [illegible] – best Cyprian queen goes to drone laying stock – bees the queen cell – queen dead and [illegible] – [illegible] – [illegible] – [illegible] – [illegible] – no color but white – I now see why the bees when left with their queen cells as if queenless – the queen cell – [illegible] – [illegible] – [illegible] – [illegible] – [illegible]

May 1st 40°, 52° – [illegible] – [illegible] – [illegible] – [illegible]

Appendix — Management of Bees —

1st — No Queenless stocks to be tolerated — if they cannot be supplied they must be broken up —

2nd — No weak stocks shd be pressed over winter for stock hives — If such colonies cannot be strengthened in time they shd be broken up —

3rd — None but hives which afford the bees the most thorough protection against extremes and sudden changes of temperature, and moisture shd be used — they are not with accepting as a gift —

4th — No hives which do not give the operatives a ready control over ~~his hives~~ every comb in a hive shd be used —

5th — Doubtful or powerful stocks shd alone be relied upon for obtaining surplus honey —

6th — The rapid multiplication of colonies shd not be regarded as standing in our climate in direct opposition to the obtaining the greatest amount of surplus honey — in any given season —

7th — The idea that colonies can be multiplied and great profit reaped by any but careful operatives shd be treated as a snare and a delusion —

8th — Strength in the early Spring absolutely necessary to the profitable management of Bees.

cells in blacks nucleus were sealed over to day two in nucleus forming last 2 days — the two black queen cells small — one black queen cell at D Hill's — not sealed over — sealed over very slanted — brood got some honey — too cool — seems a little fast to night (2nd) 30°, 54° — At 10 P.M. — last night 39° — Wind in the night S.W. fair — 7 to A.M. air E. — ice in tub at house — but 1 flower, all wind day and afternoon bushes in bloom pulled for wind expect to see bees start — some queen cells at D Hill's sealed this morn — one of the first I saw — full half cell nearly about to be sealed — I saw frames — queen cells the largest out — Wind E. — bright day — to have bees very busy — slanted honey — no brood — slanted nucleus — and grass a little leaves — depth of snow 8 feet — (5th) 45° 46° — wind S.E. — by 10 to gain before day — a great out grass down — snow nearly free during the day — In the P.M. — shower with thunder — very dark — a clear sunset — blue sky — and very appearance of clearing up and freezing in the night — clouded over again — saw the number of black moving in one direction and the complex in another — snow more distinct — at 9 P.M. 42° (6th) 36°, 56° Very last wind — In the morning one cell in nucleus — two cells — one cut large as some queen cells — but freezing nearly at bottom cells — one the largest queen cells only fertile workers — So in the one at D Hill with Colonia comb — from a fine brood cells! one or two quite as large as the average of queen cells! Small worked with the greatest interest There cells — one not yet sealed — worm has deep down in it — not like a worker near the top — Examined bees at 2 P.M. flies by at entrance — soldered with a little smoke — good supply of sealed stores — queen left when I cut out piece of brood comb for nucleus filled — and stolen — I had cut out — Cut it out again for another nucleus — some new honey sealed over — put comb cut out in nucleus box — removed and that up in old box — to be returned bees from nucleus — other bees — shall carry away the old box — and bees in the box — get nucleus and have no common drones on my frames — If I have got too many bees for nucleus there return some before I can carry the bees — Examined nucleus with Mr L. for stock — to 1 queen some sealed drones — 4 sealed queens in drone laying colony — Carried the nucleus just formed to D Hill's and gave bees their liberty — The day has been bright and considerable honey was secreted — 50° at sunset — wind slight East — (5th) 40°, 60° — Wind strong S.E. — pleasant early — darker of rain in A.M. — heavy shower in P.M. — nucleus taken yesterday to D Hill had to feed bees — no honey — when I gave to feed bees were very stupid — weight one comb free of honey or 2 lbs — (6th) 50°, 60° 447

Rain at 9 A.M. — Ther. 52° = a lovely rain from S.E. — at 5 P.M. wind changed to S.W. & W. — sun came out. 60° — Then heavy clouds and very heavy shower 50° — then very clear and calm 54° — sun set 60° — Is not this the warm clear off for settled fine weather — Saw a bunch of Polyg. gr. Hybrids — I think that it must be in the year some time after this reception — I do my calculate — Second Hybrids bees — dusted — when the leaves — At least after sun set heavy clouds, thunder and some rain. At 8 P.M. 46° — 11 P.M. 46° — 7th 47° " 60° Wind east S.W. — very showy — bees about — then afraid that queen cells at D. Hills get chilled — and get in their way — This will be quite a loss — chance! Took out a queen cell from the Italian stocks at home — and put in the large glass hive where the queen was first hatched when I gave the hive — placed in Italian stocks a cage capped over like — fondant cake — upon which stands the cover — plenty of royal jelly in the cell — like queen cells — tested it — bees greatly charmed at it — Took out two queen cells from those large stocks with Dayton Queen combs — opened one saw no jelly in bottom — queen slow white — not mature — Gave the other to a few strong wax bees — they adhere to it well — Remember with bees very hard since this A.M. — accounts to it this P.M. — Maple much manured — it has been cut — Alder much buy this have been gathered — Dandelions very plenty and also bush-apple — Apple blossoms have hung on well this season — (8th) 47" 64° — Cleaning nucleus with two 2. cells having had a living queen this A.M. — her yellow light as well as most lady from yesterday — is be very hostile — the other queen dead on the bottom bees spoiled her cage — examined at sun set last night — did not find to matter — Cut out large queen cell from Italian nucleus — gave to hive with Dayton Queen comb first taking away all the queen cells — had no jelly in place of cell — thick cream — no jelly in place of the queen cells opened — large glass hive had opened royal cell from them for Italian stocks — Shall it — does it seem as to be likely and caught — Bees came and moved — Bees work plenty on Dandelion — very showery (9th) 46° .. 74° — bees work well — bees flew on bridge — caught one with a light colored honey — bee came home — bees flew on it — Dandelion work pretty most all day 11 A.M. — bees close up — Moved two of Hyatt stocks to Mr. Crp — bought from good stocks of him for $30 = Found in nucleus from last Italian a hatched queen dark colored — coffee colored — dark too — did not see the bees come from — Cleaning large cell opened found large fancy colored queen dead in front of the hive! Gave the detached queen to a nucleus with no queen — opened two of those dark cells found the queen — red queen! — then was satisfied that my last Italian queen had indeed wintered — have a spare queen from Italian nucleus — Saw some detached drones in my last Italian — has become quite heavy — very fine bees —

Plants &c — In my book I propose to label those plants most which are the most important — and which have been the most successfully treated of by other writers —

Mr Cripps has not got his bees — He was not expecting for fourteen days — I have now sixteen stocks of bees — and none very backward quite strong —

(10th) 58°.72 — Cloudy — put T. L. pour my J. plant to drive bees in the taylor comb — gave him a queen cage with some of her bees — Examined our stock — had incorrect my mind since last examined — one frame of eggs and brood — Early in week they kept hard yesterday & combs to three — they fill a comb up — and then which comb the receptacle was cleared — flame off clear after niggling rain — very strong wind — and yet bees get towards noon — (11th) 52° 58° One cage placed in bee glass — the old hive placed — bees get released — Put my last stock on 12 to a hive with a skep B.B. and bended (taken off they comb) placing strong hopefully fed it on milk — gave it a pint honey (bee bread) — Cleaned the bees boards — lately cleared the day flown yet bees — but gave it some honey — Rained considerable — cleared up at 4 P.M. — Stopped my next swarm — bees common bees — Moved out the balance of my stock in exchange bees to Mr Cripps — Also gave out taking to be sent bees — Stock — had bees Stock — gave the 2 skeps or swarms yesterday — Sandwich my standard stock — gave bee food has very well signed the bees flown — (12th) 52.. 56° — Wind S.E. — Cloudy — one cage day — weather not warming — (13th) Rain during the night — 56°.74 Wind S.W. — Temp. — fair Day early bees working favorably — Took 2 swarms on Black Sp. — Worked on the stocks today — bees not yet expanded — Sandwich stock my standard — bees not early — worked on it — Cleaned 2 lot. combs out little colonies bees in lots of mine — Received two 2 bees stocks — one of them has the best queen cells — very few bees and nothing in them — Gave to them in the taylor comb in place for bee glass but still doubtful — Dust fell here — Stocks cond in glass bell hung strong — gave them another comb — gave them the 2 stocks only 5 P.M. — (14th) 48°.04 — Stands in the open heat place clear (7 M) P.M. — bees work well but do not get empty combs yet

Illustrations —

Slanderer — known and despised — still attempting to injure — like a bee which has lost its sting still attempts to sting —

Immorality — Bees neglected and suffered to want — disposed to steal — tumbled, impure exposure of honey — men neglected &c —

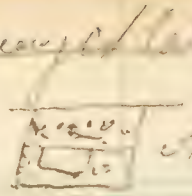
Loafing bees — disposed to sting — idle men have time for mischief — Strong stocks like right men — rule up health with care — to get up to a minute they'll have orders first. Hasson dullard — Bucket here in large glass and put it in an attitude here —

much as yesterday — Bradley the farmer of two miles distance — also came for the last time & started to return to the great forest of the west to the [illegible]

[illegible] eggs in new comb [illegible] in cells that were not at least half [illegible]

[illegible] — Many of them were very blue here respected — they are not uniformly colored — that fact of [illegible] time [illegible] — they seem to be [illegible] — [illegible] — [illegible] —

Saw some cells containing queens — two cells — they killed the queen given to them — I'm surprised
that the great stock gives less in view of the entrances at a distance — Hope it not also
make the comb straight? by causing them to attach it more to both edges of the
frame? If I had had a reliable queen I might to day to have had several queens imprisoned —
Three lines nearly as marked — This P.M. bees busy in absence of bees and pollen — Bush
gone since last a few days larger — dandelions very abundant but do not seem to
attract bees so much — Rubbed some in large glass and put it in an entrance
hive — (17th) 37° " 66° — Quite a white frost — do not think anything was injured —
Shall keep cover off of hive with queen to be imprisoned — so as to make it easier
for her to fly out — Found a small swarm dead. Seems as if the bees
came from three feet off — three feet lower — dead dry and empty. Did they
go back home? If so, why should so small a swarm be driven from?
Looks like frost — the feet were yellow color — like the flight board —
there is an egg in big sheny cell — slipped this and the dead bee into
the bottom of my hat — Cut from a dead hive and bees — the bees
yellow feet in place of coal tar — one frame coal at 9½ o'clock — three cells
at least — other — cell cast off — other cells 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40,

~~[illegible]~~ each have a Italian queen — Opened Italian nucleus at Dr Hills —  A number of beautiful queen cells started when I cut out the square — This may come too late to get any queen cells — and I propose to divide from my best queen cells in hives left for bees to hatch — edges of comb bottom bar — Checked at home to 11 AM days & bees started — In the old card with the hand there are no depressions on one side being as flat — queen cells started but nothing else. Have no queen now but I shall be able to get one in a day or 2 I hope — Began to rain yesterday P.M. — rained all night & this morning — Opened S.E. hive A.M. & my queen was not found — (21) 40 63° Cleared off & the sun came out — Opened hive in A.M. — bees got considerable honey but not much brood — Blue feet some bees seem upset — Checked up at Dr Hills has four beautiful queen cells — Cut out the best one & left the bees with some food & young, which selected the best of the bees has raised four finally queen cells — but late discovery queen too finally caught in this way — Looked in brood nest & bees to be sure of finding queen — Looked in brood nest & bees to be sure of finding queen — Opened hive in A.M. — Made nucleus of Dr Hills bees & a small portion of comb with a few bees — Cut out all queen cells but one & left one queen cell in the nucleus — Chec

(26th) 56°, 92° = Lowering at Bedford has been poor for some days — at the close of December it was very light & very — [illegible] — Secret — a few flying in the range — [illegible] — [illegible] — [illegible]

Jan.y 29th. 1862 – To day temperature 52° – Bright sun-shine – Bees in one of my flattest hives brought in bee bread of a red color – this hive has a bright sunny exposure – but it had no extra covering – it contained a small artificial swarm – they have done wintered most admirably – I shall try to encourage them in early breeding – and test the advantage of a sun exposure to a sun – at hive to day well protected and in the shade did not fly at all.

Feb.y 2 – The flat hive has been fed to encourage comb building and breeding – and very well carried as the weather has changed to cold – I notice that the bees have commenced robbing at a distance – honey does not comb building deteriorate air of a hive – as well as increase its heat – and thus cause a necessity for ventilation which does not exist when a bees are inactive –

Feb.y 5th – Opened my flat hive and found that a great many cells contained young worms – the bees to day brought in some bee bread – I should think from a red maple – at hive well protected did not fly – until some of a covering was removed – this shows how these bees will keep a bees quiet when a ground is covered with snow – and it is not desirable to have them leave their hives – it also supports my view that such hives ought to have their covers taken off in early spring or fine sky days to encourage early breeding – no danger in this as a hive are covered again before night –

Feb.y 10th – I separated a part of a swarm with a divider – 11th – To day they appear sensible of their calamity – 13th – To day I find two royal cells started – 14th They have advanced since yesterday – weather cold and snowy – (16th) I find four royal cells – but they are all tenantless – I allowed them to go back to the parent swarm – shall resume a experiment when the bees can gather abroad – The part separated had only new comb without bee bread – Feb.y 28th – The bees in my experiment hive have reared no new brood – there is no bee bread in a hive at – they as late artificial swarm of last season – I examined early to day but find no eggs – I have given them a lot of bee bread taken from another hive –

24th – They have taken nearly all their bee bread – the Queen has laid a multitude of eggs – they have taken a great quantity of water from their feeder – which they had neglected before – I have again supplied them to rear new Queens –

25th – A Queen reared last summer artificially which started examined to day – found by too much dark to determine anything – opened – there – full of honey.

26th – Royal cells begun – 27 – Continued – 28 – Continued –

March 1st – of day only one contains a worm – 3rd Hive prospering – at little bee bread has been gathered for the last week – 3rd – Weather very cold – worm dead – the bees returned – No new egg laying observed – for want of bee bread – 4th – Violent snow storm
March 9th – Weather uncommonly fine – Bees gathered a vast amount of bee bread – Feeble colony set in place of a strong one – strong one shut up – suspect bees sought to reinforce feeble one – sent away per city – March 10th – March 13 Working well Opened to day a hive with goodly number of bees – but one which had no supplies of pollen – found no brood – but fresh pollen – of the last two days – Second examination this spring have demonstrated a scarcity of pollen for early brooding – Took out 1 Queen of this hive on a frame – bees unusually disturbed – flew about – worked in moves one I took as they are wont to do when Queen lost – March 15th – Found a royal cell begun in 1 hive!!! no worm in it – Queen present!!! They were so thoroughly frightened that they did not take in her presence – March 17th – At dawn Queen apparently Queenless – Hive good – attack intruders – drag out dead & leg in no pollen – March 18th – 19. 20. 21 – Weather very cold – Thermo 22° – Bees not able to go out for water – wonderful quality of water they consume in their feeders –
22, 23, 24, 25 – Weather quite cold – no bee bread gathered for some time – Bees going for water have been so chilled as to be unable to return – 26 – Quite warm – bee bread gathered – Took out the combs from a hive and converted bees into pound bees very peaceable – Clipped wings of Queen – found a large royal cell – dd – in a hive of last year – 27 – Weather very stormy – 28 – Cool – 29 – Stormy – 30, 31 – Do – April 1st – Clear – Hive on which I have been so fully [illegible] – 2nd – Royal cells begun fair – 4th Only two contain worms – Weather very coldly cold – 5 or 6 inches snow – snow – hail and rain all day – 8 P.M. – Thermo ~~33+~~ 33+ Light rain & loud thunder –
6th – Snow – 32° – ~~But one royal cell continued – that nearly sealed over~~ Two cells sealed over – (7th) Still cold –
8. Royal Cells taken from bees – further time given – clay hemmed in at first – time given before both cells removed – the last not seen at first – doubtful whether the is alive – (8th) She is alive and well Put a small lot of bees on the comb with sealed Queen – They at once clustered on it – and will develope it – They good – [illegible] – 9. 10. Storm – 13 days since a warm day – Thermo 35° – in the morning snow and rain – April 9th – Thermo 50° + Ground white with the snow – clear but cool –

In hives without pollen no eggs or young worms – Can a substitute be found – it important in early spring – 10th – Thermo 36° – ice in the country round – Begins to be warmer – Apricots in my warm and sheltered places just beginning to blossom – 11th – A little warmer – rain – wind at E. 12th – Rain Wind at E. – very raw – 13 – Clear – warmer – 12th – No eggs in hive shed – no bee bread – gave them eggs bee bread – 13th – To day found eggs in cells – I consider it proved that pollen is absolutely necessary as that no eggs laid in cells without it – 14th – Much warmer – some rain – bees most vigorously engaged in bringing in bee bread and honey from the Apricot – 15th – Powerful rain during greater night – raining many – cleared up at 11 – cooler – no bees at work – grass looking very promising – 16th – Clear – and warmer – bees abundantly ~~busy~~ gathering from the Apricot – 17 – Warm at 8 AM – cloudy towards noon – cool at night – wind at E. – 18 – Very raw – powerful at E. wind – at night severe rain – 19th – Wind still at E – very raw – Thermo 42° – Very painful wind. – 20th – Wind still at E – raining – blowing – Thermometer 40° – Bees can do nothing out – 21 – Much rain last night – wind changed to N.W – blowing strong – Thermo 38 – raining day Sunday and morning – bees out at noon after water – Swarms in well protected hives with plenty of water, honey and bee bread do not lose much such weather – They keep the combs more clean for young – 22 – Wind N.W – still cloudy and windy – but warmer Thermo 44° – Bees out much at noon – Took Queen from a fine hive – gave her to hive with none – well received – the bees were doing nothing in the hive in a few minutes were busily at work – Then without her began to complain – loud – Sad humming – (23rd) Thermo 44° – Wind N.W – very windy – cool – spits of rain – some hail – bees scarcely stir out – Examined hive into which Queen was put – found that she had laid a very large number of eggs – often of one or two hundred a day nowadays – Find that the bees when they come out change their faces – have been caper[illegible] with – 8 P.M – Thermo 42° – Sun has shone but very little – This A.M – bees deprived of their Queen seemed to be quiet – If they have the means of obtaining eggs – disquiet of short continuance –
24th – Thermo 38° – N.W – cold – angry clouds – softened towards evening – bees scarcely stir out – 25th – lowdy – but warmer – P.M – clear – pleasant – bees busy at work in the interest – weeping and curled willow bright –

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26th – Quite warm – bees did a power of work – A stray swarm lit on my premises – Lived them with a weak one – restored Queen – found numerous Queen cells under way – In the evening a thunder shower – rained much during the night –
27th – Wind N.W. – cold clear up – angry clouds with much wind – bees did nothing – Found Queen of emigrant hive – dropped her and lost her – bees towards noon swarmed out and entered the deserted hives – but few were killed – yesterday Queen was returned to her hive – to day royal cells discontinued – Attempted to introduce a Queen to a hive which I feared might be Queenless – They treated upon her to kill her – was convinced that they had a Queen – Hive deserted by Queen had eggs – An early hive last year deserted had eggs and young – (28th) Thermo 40° – Wind N.W. – windy – and cool – bees gathering considerably from the willows – Noticed the effect of a fence that protects bees from wind in encouraging them to work – (29th) Thermo 46° – wind S.W. – pleasanter – bees working freely – Cherries beginning to show blossoms – 30th – Thermo 50° – cloudy till noon – bees flew and worked smartly – very P.M. – thunder showers during evening –
1st May – Cloudy A.M. – Wind N.E. – fair and very pleasant in the P.M. – bees worked wonderfully – 2. May – wind N.W. – cloudy and cool – bees worked cordially – 3. May very pleasant and much warmer – bees worked exceedingly well – Wind N.W. –
4th Therm. 40° Wind N. – very cool until noon – bees did nearly nothing in the A.M. worked well in the P.M. – swarm in perfect cluster hived – May 5th – Thermo 40° + Wind S.W. – warm and pleasant afterwards – Heard a swarm of last year to Cuthbert – Half an hour after they had their liberty saw them hying back to the hives in about an hour were working as well as though they had always been there – May 6th – Quite warm – bees most vigorously at work – Dr Brainards bees at work in the upper box with frames – the box on one of my hives was put on too late – saw royal cells – indicating intention to swarm – Made an Ar. Swarm – gave comb with eggs, young & and some other combs – put in place of an old stock – in a short time all were satisfied and bees worked with vigor – May 7th – A.S. – Dare done nothing towards raising a Queen – but work on the great vigour – Gave them a Queen from another hive – Weather summer like – bees working on the blossoms of trees with great vigour – 8th – Hive from which Queen taken very active – Summer weather – Apple and Pear trees in full bloom – 9th – Summer weather – 10th – Thermo 48° Clear and warm P.M. – Dandelions at their height – Apple blossoms most in full. Hive from which Queen taken began royal cells – the new comb – but there was no worm in them – Queen taken from A.S. and returned – Hive moved to another A.S. – almost recovered from the shock –

May 11th 1852 Weather summer like – bees stick upon the Hives – Queenless hive constructing a royal cell – Killed many drones – found a hive very active without being conscious of it – have noticed same before – May 12th Powerful rain last night – and this A.M. – cloudy all day – bees doing nothing – Ran a divider into a hive at that St. – Have seen no drones coming – 13th Rain – rain – 14th A.M. cloudy – P.M. splendid – 15th Rain – A.S. – 16th A.S. ~~cool – cloudy~~ A.M. cloudy – P.M. beautiful – 17th A hive looked like swarming – afterwards went to make quiet came up in P.M. – 18th Clear – cool – made an artificial by moving two to catch up – removed and fed 2½ qts of meal placed them on their spot – 19th Found royal cells in A.S. – looked down – three capped are just like drones!!! – A.M. S. we looked cells with eggs – cannot imagine the cause – noticed a few days ago that the bees were in a state of great agitation – after that the royal cells seemed to be cut down gave them other comb containing eggs – weather cool rain in the evening – bees doing but little – 20th Wind S.W. raw – clouds – bees work but little – 21st Wind S.W. – clear – warm – bees find but little to gather from – The caught up stock moved only half a mile work well – do not think many heat back – Saw to day hives which had no bottom board during the winter – they were well stocked with bees – 22nd Warm – pleasant – 23rd Warm – showy – 24 – Found a sealed royal cell in the one which had drone cappings – Hive it came despoiled of Queen 10 days ago. Had started about a dozen royal cells – only one contained a worm that was sealed – took it and restored their Queen – very beautiful Roses – fine prospects for a rich hay harvest – 25th – very warm – found two more royal cells in A.S. – 26th Found it very difficult to get bees to enter hive put in their place which is of a different color – hive should be all properly alike – 27th – Raining very – drawn of yesterday hight to be fixed – received 10 dolls – for hive and right fruit trees – 28th – Bees deserted hive – put back – Queens wings clipped – think the smell of paint was the cause – Examined one of the Queens as I thought which had a drone capping – It was a wee Queen – put several sealed Queens into my nursery – Bees work finely on rasberries – 29 – Cloudy – Had drawn S. bees working powerfully on rasberries – beginning on tulips – Found worker eggs and drone eggs – of same age – Merged seven of drones in water poured it into cells of drone eggs – Made two swarms – put comb with brood and set in place of old stock – expelled Queen and all the bees from a hive and put them in another on same spot – put empty combs in a hive on the spot of another stock – bees worked very well –

May 30th – Bees working on the tulips – had a fine swarm at 9 A.M. 2 ½ – The new swarms that work most powerfully – and the old stock work better after swarming – 31st – Had another good swarm at 1½ P.M. – weather fair but rather cool – Saw a Queen entering among the very first into a new hive – My old stocks moved work unusually well – If they when moved do as well the system of moving works most admirably – Saw a Queen on the old box from which bees were shaken when nearly all the swarm had entered the new hive – June 1st – Caught Queen when putting swarm into hive – kept her until nearly all in – they had not injured her – Caught a Queen leaving the hive with a swarm a large part of the hive had left before she left – the bees refused to light but her on a twig of a small evergreen – a very few bees saw her – did not surround her but flew right off – in a few moments the swarm came to this spot and clustered around her – her wings had been clipped and the swarm put in 1 P.M. – too much light and heat – June 2nd – Very warm – bees working most powerfully on the tulips &c – Four swarms just put into hives in my apiary left – too much light and heat – hives ought to be dark and well ventilated – kept dark until the bees have begun to work well – In hives which compel the bees to work contrary to their instincts too much care cannot be taken to prevent them from leaving the hive – June 3d – Obey my fall swarmed out yesterday and again to day – each time returning – Found Queen cells started in one chamber which swarmed out and left its Queen – Windy and very hot – one hive swarmed – lit on an old thistle stalk on the ground – Caught Queen and clipped her wings – Made a swarm by moving – Tremendous thunder storm – powerful wind – rain – and hail – June 4th – Quite rainy – Had two swarms hived dead for want of sufficient air – Heard teacher this same experience – Saw bees uneasy in one hive without Queen – gave them cells containing eggs in tumblers – all right now – 5th – Saved Queen of one smothered hive with sufficient for a nucleus – found many of the bees alive but with bodies distended with the same fatty substance as when they have dysentery in July from damp foul hives – intently as showing cause of the disease – Weather dull – 6th – Fair – bees working prodigiously – but little but by a rainy day – comb made and the moon having gathered the next day –

9th – Very windy – bees working well – but few swarms this season – hives have become very heavy – 8th Powerful wind – bees working much – Hived a very windy day had to form A.S. – Bees in one of my Chaffy came out for the 4th time – double glass in there keep them very warm – they evidently do not at first like so much light – 8th Very rainy – a hive has been piping for second swarm for four days – weather has not permitted them to come out – yesterday convinced me that when hives are weak and near making A.S. by moving will be attended with considerable difficulty – 9th Very windy – cool – weather has been good for honey getting – but very bad for swarms – have had piping in a hive since last Saturday – and bees have not yet come out – had a new proof of bees ability to make bees cluster by putting their Queen on a limb of a tree – Had a helpless Queen in my hand off some distance – A handful of bees have thrown my Queen – she died – bees settled today – saw the whole process of swarming in an Observing hive – bees very uneasy – some time before they came out they had taken honey from the cells – began to be greatly agitated – OD [illegible] very in circles – increased – a few flew out and then back – seemed restless to the entrance – 10th Piping bees did come out yesterday found them this A.M. on a fence – Land them – my Queen several times tried wing – they are far more disposed to do so than old ones – A few hours after they were hived – they were in great distress – made same noise as when Queen lost – believe that she went out to be with them – in about half an hour all called down again – Put about a quart of them in a hive with frame containing eggs they went to work as though all was right Put a frame containing eggs with bees into a hive to set up for a few days to form a nucleus – Weather very cool and wonderfully windy – but very little natural swarming – Head piping in the hive which has thrown two swarms – 11th Swarm abandoned chamber – they have not worked for the last two days – Queen did not move on the comb to lay eggs – More than two hours before they swarmed observed them in the cells eating out the honey – a short time before they came out saw the Queen roaming on the comb – not like a satisfied Queen – but few bees had flown out – these mostly flagged about – noticed some in a tumble on the side of the hive to be the first to try to leave – hived them in a practical hive – both this and another swarm abandoned under the same circumstances – worked with prodigious zeal as soon as they

were established in a line to their mind - If bees do not make in a line in which they have been placed - it is a pretty sure sign that they mean to leave - Neither stick cut for the sealed - Failed in an attempt to fan an A S - by setting hive with comb in place of old stock - perhaps they had no young - Bees stick either to the new comb in the hive before which they were shaken - If nuclei can be formed to rain of 2. when they are sealed is the time to form a S - 12th - Had a second swarm - another swarm abandoned my cheap hive - it was a first swarm - a few returned - gave them comb and they are rearing Queens - no second swarm has yet left - They are not so much afraid of the light - Formed two other nuclei - only one adhered - formed the nucleus just found - They are engaged in rearing Queens - This plan will answer - 13th - Quite warm - Had a third swarm from the hive wh. swarmed yesterday - in hiving the bees day before a part returned - 14th - Had a first swarm - heard piping in the hive which had swarmed three times - Found royal cells started in my shut up nuclei - I call this the nucleus system - 15th - Exceedingly hot - shut up nucleus disposed - no cover bees on the hive and all circumstances were unfavorable - Have found 12 sealed Queens very antipathy in one colony* - Second swarm of 10th Queen I saw crippling this P.M. - ~~Third~~ Second swarm Queen I saw come out to be with the drones - the bees while she was out of the hive were very much agitated - acted almost as though they were swarming - Formed four shut up nuclei by taking hard comb - and catching up bees wh. were begging on the outside of hives - Am beginning to be satisfied that bees can transport eggs or young ones into royal cells - 16th - Exceedingly hot - clover at its height - One of yesterdays nuclei - accidentally had its liberty - bees adhered - the others have not succeeded - Found hive wh. was without Queen (taken from them) with four frames with Queen cells started - Have used them for nuclei - to have their liberty - Transferred maturing brood to a second swarm - Formed for the first time a swarm from one of my nuclei - with Queen nearly sealed - by making an old stock - worked most admirably - Had a 4th swarm - 3rd came ~~on Sunday~~ day before yesterday - after the swarm came out - heard piping - saw Queen ~~was~~ on the alighting board -
17th - Exceedingly hot - shower in evening - had a strong first swarm - Cut out sealed Queens from a cheaply which had thirteen (13).!! Put them

* This colony swarmed when another hive was strong - although the Queens were in embryo

in a piece of comb on a frame - set in place of mand stock - tended most admirably - found my yesterdays nuclei failed - bees were too hot - Tried to form two with hand comb and bees from the natural swarm - both failed - Think that the comb ought to contain worms a day or so old - Tried to pass a lot wh. came back after the swarm clustered on the glass with the comb from wh. I tried to form the nuclei from the natural swarm they wd not accept it - they did accept a sealed Queen - Found the bees in mand stocks to fly and work till same day they were removed - Bees are most rapidly filling up their hives with honey - When no hive like their own and which the swarm came from near where mand stock stood find but little difficulty in making st. S. - Found a large quantity of liquid jelly at bottom of cell containing an unhatched Queen - Looked like Quince jelly - tasted like Guyacole paste a little - Found a hatched Queen the same out last night - one near her was killed in its cell - wh. was opened in the side - Queen cells differ very much in size - found some drones in cells of workers - scattered here and there - here in several instances found the same capped like drones - Rough in worker cells - 18th - Showery - found at that the middle piece of my frame makes comb irregular !! best like to build comb from front to rear in one piece - heard call of st. 2. same somewhat like bees did at first - 19th Very hot - Obey hive lost Queen - worked about like pantin on comb - came out like Drony - was filled with honey - made at first singing noise - Formed two nuclei wh. seem to be doing well one from bees taken f. a st. S. - When by using a comb with hand, bees and all - bees other others wh. failed - bees from st. S. - had not all gone in - there in nuclei heard them on wing and joined them - This must be done early in A.M. or towards evening - before when bees will not take wing - Caught two imprisoned Queens - bees seem to imprison young Queens to prevent them from going out - Find that to form a swarm by many there this be less delay to comb - Queen in the morning - 20th - Quite hot - bees early till in clover - 21st - One of chambers with a young Queen has swarmed out several times and then returned - 22nd - Found most of the caught up swarms with sealed Queens have succeeded - Hives wh. have been often moved - seem unwilling to depart the hive - they seek for their own hive and most of them find it again - Attempt again bees carefully to prevent young Queens from leaving the hive - by imprisoning them - Found 12 sealed Queens on one comb !! Found a Queen hatched wh. was light like any other

gay hatched bee – another has been flying now for four days and is not hatched out yet. – Bees with unhatched Queen cells show others –

June 23d – Weather quite cool – bees in such weather gather but little from the white clover – Made a new colony by shaking out bees in front of a hive where they stood – and putting their combs in place of a moved stock – Made five by lifting out half of the combs with their bees into another hive – and dividing space between the two – gave the first with that a Queen a sealed young one – Saw some drones here and there in worker comb in ch. no 1. 2. were rearing – bees do not seem to do much in my chambers – June 24th – Cool – cloudy – Seven hives formed are doing well – (25th) Windy – cool – 26th – Warm – Bees do not seem to work so well on the white clover although it is quite abundant – 27th – Hot – bees still do not seem to be doing much work on white clover – 28th – Found to my very great disappointment that many of my small colonies which had young Queens seem to have none – were they lost in their excursions to meet the drones? or did they leave from discouragement? Have I been careful enough to keep the hives so situated that they will be pretty sure to find them on their return? Bees in my chambers do not seem to be getting along well –

29th – Cloudy – Bees do a little more on the clover – Found yesterday a Queen hatched with imperfect wings – Put an unimpregnated Queen to a hive using young Queens – the first bee that touched her – stung her so that she soon died!! Drumned out four colonies – they were in old hives which had very frequently been moved to catch swarms – and yet they were prodigiously full of bees – after drumming some five minutes until bees had time to fill themselves carried the empty hive to an angle of 45° – got nearly all the bees out of each hive – they were very numerous – in one instance the Queen was among the last to go up – Put the old hives in place of another old moved stock – in one instance at least found the other bees attacking the old hive – had to take it away – of all plans for increasing this is one of the very best – easy in my hives – Powerful number of drones in some of these old hives – Notice the building of only drone comb in hives without a Queen – Multiplication of colonies ought to cease about the time that drones are being killed off = 6 days young Queens ought not to be allowed to build comb – hive this to full of comb – if bees are numerous = In all he may have had but little swarming until with the last few days – when bees were gathering from the tulip tree id scarcely get them to notice comb with honey – now they are eager for it – Must be more careful to guard against robbing –

30th – Very warm – P.M. – slight shower – Moved the hive wh. was being rotted about half a mile – All the operations of yesterday seem to have been successful – Drove out four more colonies in each instance found the Queen – sometimes she went up very soon – at others lingered among the last – Put part of one swarm into an empty hive – put the balance without their Queen into the hive they came from – The most of those put into the empty hive adhere – darkened it – and shall keep it dark for some days – After dinner one put the most of the bees with Queen into a new hive in a new spot – others back to their old hive to raise a Queen – After dinner another carried the most with Queen half a mile off – put the rest back on the old spot – A Queen wh. I kept for a long time in my closed hand bit me quite hard – She was so intent on this that when I opened my hand she did not desist – July 1st – Very warm – bees work much better on the clover – seem to be at work on the Buckwheat – Have driven two more colonies – find bees very much disposed to rob the old hive from wh. the great most of the bees have been driven – Find to my exceedingly great delight that my small colonies made by moving and giving them Queen have not lost their Queens – Eleven out of 12 have succeeded – Found a Queen with but few dozen bees around her – Put bees from a driven swarm to form hives with comb containing eggs of worker – two to be left on my own apiary – two to be moved half a mile – find that when bees are shaken down they should be sprinkled if we wish to prevent them from taking wing – find the efficacy of my blocks in pretty robbing – saw drones in a glass hive wh. was driven feeding themselves like the others before they ascended – July 2nd – cool and windy – bees almost entirely idle – Have found another Queen with a handful laying – The nucleus system can be made to answer – The bees in the four nuclei of yesterday having their liberty all dispersed – Must be moved or confined – or brought from a distant colony to form nuclei – Formed 5 nuclei by shaking up with hand – July 3rd – Bees work a little better – Found drone comb in a small colony – They were Queenless – Queen was hunt in hiving – She laid no eggs – and yet they were especially industrious in working – comb nearly all drone comb – had built the beginnings of royal cells – altho' they had no eggs – gave them another hand in transfer which they most joyfully accepted – July 4th – Sabbath – July 5th – Drove several colonies with success – Found a Queen with defective leg – it was injured – had one like it last year –

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July 6th – Hot sticky weather – Some late in P.M. – bees have worked more admirably – clover still good – Linden in full blossom – My last up nuclei had their liberty – they had begun royal cells that suffered for want of air – no unrest in royal cells – the plan with proper precaution was a success – found the bees indisposed to leave the hives – say that they were adhere – Formed a number of hives with sealed royal cells – by way and catching up – Most of them appear to have succeeded – Bees adhere to the comb wonderfully and in the catching up process – Put a laying Queen into an empty hive on a comb – put it in place of a mated stock – did not seem to assume any better – the Sow came out of the hive – gave her to a colony rearing A. I. – Found drone comb scattered among worker brood of a colony rearing an A. I. – This does seem to be common – Can it be that drones a few are laid in the worker comb – and that bees rearing A. I. raise them while others do not? An obscure summer yesterday – Queen had been put into one which lost their Queen – she was taken from a common hive – thought that the worker room after she was given – because bees built royal cells – the sealed one 9 – almost all the bees left in the summer – Queen taken away and bees put back – the small colony and the Queen with impaired wings disposed to dy – Queen gone – Some of the colonies begin to attack the drones – In way to catch up – bees seem to go often into the adjoining hives – have had no quarrels – but when a hive second Swarm left and tried to unite an old colony – they killed them all at once – Is it true that colonies lay Queens in defect conditions – (impaired and not) are more apt to quarrel? Hives my comb for the most part very straight – when bees is in great profusion bees build more coarse comb – and more irregular comb – (7th) Clean hot – bees still work well – Hives formed by catching up with sealed royal cell – do not appear to have made anything of the Queen – gave them hard comb from wh. they are rearing Queens – Do they not destroy sealed Queen if they are confined? ought she not to be given when they begin to rear young Queens – Still notice drones in centre comb where I am rearing A. I. – Found hives wh. had been deprived of comb well filled again with comb and advancing hard – taking away comb much better than to divide up so as to weaken and stop comb building – 8th – Hot dry – 9th – Do – 10th Do – 11th Do – 12th Do – about some days from my apiary – 13th – Fine shower – clover still looks abundant – Sealed Queens given to Nuclei have hatched – Have formed a number of Nuclei – appear to be all doing well – some young Queens a good while before they commence laying – Have daily increasing evidence that it is not a good plan to weaken hives by dividing – and that if a few combs only are taken from time to time they are only weakened in honey and not in brood –

19th Last week much rain – There is still white clover – but no sweetness in it – Some swarms are in want of honey – bees must now be fed to make comb and gain any strength – are much disposed to rob – Nuclei formed from comb with eggs and hatching bees are very Queens – Have reason to fear that I have forced the multiplication of colonies too far in that respect to feeding – Saw eggs in a hive from which I had taken their Queen – looks as tho' a fertile worker had laid them – Opening a hive found two Queens clinched in combat & worker was mixed up with them – separated them – both Queens appeared unhurt – think that a young Queen mistook her hive – Have found worms in a number of the hives – can easily root them out – Have had so very many weak hives – that I could expect nothing else – Am now satisfied that the Nucleus plan will work – and that the whole system of management with the frames will answer – and now more than ever convinced that rapid multiplication is not to be aimed at unless under peculiar circumstances – 26th Found some colonies actually on the verge of starvation – Find my plan of feeding in the bottom of the hives seems to answer thus far well – ~~Took~~ Drew a powerful old top hive – the hive was an exceedingly large one – had a power of honey – and honey – The old Queen with a large part of the colony had been driven out some time before – Evidence of the avenging fatality of a Queen when she has a chance of doing what she can – Must not feed out of doors unless I want to feed my neighbors bees – Can see that it will take a great amount of honey to put my bees into the right condition – Comb building and rearing young bees the objects to be accomplished by feeding at present – If bees are plenty and I can have buckwheat they will then get their supplies – They find it best to move them to such supplies if they are not near – Find that the old comb can be put with exceedingly ease into my frames – and with but very little loss of brood – 27th – Have found a number of the late formed Nuclei Queenless – Have forced multiplication of colonies altogether too far – Have not found worms much except in the combs – and generally in the small Queenless stocks – Found in one comb a large number of bees unable to leave their cells because of the webs of the worm – the contented Queen had been destroyed by the worms – the bees did not appear injured but tangled up – A large colony which had not been disturbed for some time was found Queenless and had 7 unsealed Queen cells – This shows that Queens may die and yet eggs be left – Do bees not generally die very suddenly? Bees got the heat from the Indian corn tassel –

them had seasonable rains – (30th) Found that one of my hives was very inactive – no bee heard – a search any gathered when others actively gathering – opened it and found many worms in it – They were nestled up between frames and bottom board – found it exceedingly easy to remove them – As soon as I procure rollers shall a hive from time to time I suspect that some thing is wrong within – (31st) Have taken up several of my last formed nuclei – the season having been very bad I have attempted to multiply too much – the feeble colonies are infested with worms – these lodge themselves very much in cells contrary hand as they are able to conceal themselves there – the grey are often so entangled in their webs that they cannot extricate themselves from the cells – I have neglected feeding too late – The season at first was favorable – but taken as a whole has been very poor indeed – Several Queens have rejected a fertile Queen offered to them – (August 2) Have had several starved small swarms visit my premises – Some of my small ones have abandoned their hives – Shall never again attempt to form nuclei late in the season – They ought to be formed early in June – and so strengthened as to be in good condition before the honey harvest is over – (11th) Plenty of white clover still but no honey to be got – Too rapid multiplication entail too much labor in feeding strengthening – guarding &c & am disposed to object from its results thus far – If I had had numerous powerful colonies to strengthen my weak ones from it without outside help – Found a young Queen laying only drone eggs – the drone brood was laid in worker cells – capped over with drone caps – dwarfed in size – shall have her disposed of – Queen proved that she was not impregnated August 17th – A very small swarm came to my premises – 18th One of my small swarms deserted its hive – the Queen's wings being clipped she was lost and they returned to the hive – Shall unite my small swarms and feed them up – Caught swarms in a feeble swarm between the bottom board and the frames – 19th Uniting the small swarm with another Queen was killed by them and they set out to rear another – started from a fence – 25th Drones are still to be found in the apiary in some hives in considerable numbers especially in my strong hives – Found a young Queen with the male organ protruding from her body – tried to force it out but could not without exerting too much force – Buckwheat fields in full blossom – bees begin to gather from it – Bugs still continues to hover about – Sep. 2nd – Found a Queen had hatched in a hive which was receiving artificial queens – Found several ripe cells almost destroyed – the bees were gnawing at one to destroy it – (Sep. 3rd) Found some honey stored up by the strong stocks –

Sep. 10th – Circumstances prevented me from strengthening and feeding my small colonies and as the season has been an exceedingly unfavorable one – I am now breaking up many of them – To day several swarmed out and went to other hives – They appear to be perfectly sensible of their unfortunate condition – He who wishes to have the least labor with his bees will have the least to do with feeble colonies – Candy I find to be a very convenient thing with which to feed for temporary purposes – I find but very little brood in the colonies which have been so bare of honey – Rev. E. D. Sanders – hived a swarm in one of my hives about the middle of June – it was only moderate – after it had nearly filled the hive with comb he divided it – by judiciously feeding – he has now two very good swarms of bees – (12th) Quite cool – Breeding had almost entirely ceased in the hives so bare of food – The colonies appear to be very free from vermin – Have noticed the wasps most annoying the bees – I find it very easy to feed for temporary purposes with sugar candy – think it will answer admirably for Spring feeding – will encourage the bees to breeding – and be safer than liquid honey – (Sep 20th) Found an great many eggs in the hive which had a queen since Sep 2 – showing that she was late at Sep – they may be impregnated – (Oct 6th) Colonies which have been fed began to breed more freely – They moderate fall feeding as well as Spring feeding will not be apt to encourage breeding – (Oct 18th) Found in some colonies quite a considerable amount of sealed brood – The weather has been unusually warm and pleasant – although a few days ago there was a hard frost – (Oct 21st) Weather still warm for the season – found eggs and brood in all stages in one of my hives

(Greenfield Mass Nov. 10th 1852) To day broke up a Hooker Hive – it contained a powerful swarm of bees – the hive was deficient in protection – the bees have been in it about eight years – there were the remains of Queen cells in it – it has never swarmed and must therefore have renewed its Queen – the Royal cells (one of them had certainly produced a Queen) – Most of its comb had never been renewed – and yet the bees were full size and very vigorous – The hive was with cells ~~[illegible]~~ chummed before it was opened – and the bees manifested but very little anger – The combs with their honey & bees were transferred to one of my hives – By cutting the combs a trifle larger than the frames they may be crowded in so as to need no tying – old comb bears crowding –

Nov. 17. 1852 – The bees in the hive before mentioned were furnished with water as the weather was too cold to allow them to leave their hive – they generated worms and attacked the comb – to day they were put into winter quarters – one one of my Protectors – (Dec. 2. 1852) Weather extremely mild for the season – The bees in the hive on the protector did not store any more than in a dead of winter – while bees in other hives were out in great numbers –
(Dec 9th 1852) The weather for the last week has been uncommonly warm – by using the blocks the bees in the hive on the protector have flown as usual – The Italian hive which I transferred had been 8 years in the hive – it was very aged – and the old comb did not seem to be gay the worse for age – (Jany 19th 1853) Until the last week the weather has been unusually warm for the season – bees in some hives have been on the wing – in than one the Protector all state – Temperature in the Protector for the last week has not varied more than 8° – highest 31° – lowest 28° – This shows that it answers most perfectly the end designed –
March 20th Pleasant – Bees flying briskly – 21st Very warm 52° – Bees flying wonderfully – Looked into 1 hive transferred Nov. 10th – Pairs of comb modeled some – as bees could not fly out after they refined and fastened comb – bees very numerous – quite a number of drones – say a dozen or more – some hard first hatching – a very few cells started with nothing in it – did see no young hard – Queen has died of old age – Weather in Protector 32° – March 29th Warm – bees flying – have been state for some days – they evidently forgave the rye flour to the wheat – this a great discovery – 31st – Bring in considerable bee bread – Begin to get honey considerably – April 27th – Spring very forward – all the storms have cleared off pleasant – a few clean off – May flowers to kept – bees very forward – gather honey pretty fully –
May 9th – Storms state clear off warm – peach and plum and cherry in full blossom – dandelions considerably – Maples beginning to fail – also willows – apple blossoms exceedingly abundant.
June 8th – A noble swarm – lost one last week not watched – White clover worked on by bees – raspberries – Saw a Queen lay when the comb was lifted out of the hive! A very small clover helped prodigiously by giving comb the season thus far very propitious for bees – Tulip tree not in blossom yet –
June 4th – Examined frames in two new swarms – in each comb quite regular without any guide – in one wax extra off the edge – think that the new frames will answer without any wax or comb as guides – Weather changed very suddenly to cool – clover out very much – bees work a raspberry –
5th – Bees swarmed yesterday – after having left the new hive and went back to 1 old one – Queen lost 6th – Turned on A.S. from a hive expected

from common hive a month ago – stock out from with Queen – shook up the old hive – allowed new one to be in formation yet – Drove in [illegible] from common hive – placed it with Queen in a new hive – put them in a new place – old stock in old place – each had Queen cells – Drove another – did not see Queen – put them with [illegible] comb in their place in place of the old stock moved this and gave the bees fresh honey – too late to fly – cf. S. made early [illegible] – [illegible] with indigestion – [illegible] – heard of the swarm leaving one yesterday – one to day – (June 7th) Found Queen in hive which was driven – Drove another before breakfast with apparent success – drove another at noon caught queen clipped her wings – drove another 7 P.M. (too late) Found a number of Queen cells one sealed – cut out some – gave them to the old stock from which Queens were forced – Queen swarm especially uneasy if not given back it has left the hive – gave them the sealed Queen they were pacified for a while that time – Queen must have been left in old hive – forced swarms which were hived on the old stand took with great vigor – (June 8th) Hived swarm of yesterday before breakfast – with a queen and raising young ones from hard coal given to them – Hived swarms all took with great vigor – Second swarm came off 1½ P.M. – clipped wings of Queen – transferred a colony from a hive that swarmed – found two sealed queens – a number unsealed – and one which only contained an egg – transferred the comb, bees & with the bees – (June 9th) Gave a colony – went in to hive beautifully – in the afternoon hive became uneasy – had no queen – [illegible] – Hived pigeons in four hives – Corn abundant – bees get more honey from it – but nights too cool and not get the usual sweetness – (11th) [illegible] – found but small – clipped wings of Queen – they worked well – but not day forward a new swarm came – (12th) Hive with Italian Queen hived 2d black swarm – Old hive whose swarm returned – took out one frame – Bees work quite lively on [illegible] – (13th) [illegible] swarm caught Queen & one – clipped her wings –

Bees in hive remained that forenoon to remain very well – Found 8 queen started in Mr Rhodes hive – they have filled comb given to them but have built no new comb – Forced swarms are all working with great vigour – Have very sweet 3 colonies forming – (14th) Had three swarms two from pipers – (15th) Forced swarms – when I do not see Queen she is almost always left behind – 16th – Saw a colony which threw an enormous swarm from a hive holding more than a bushel and a half – drove it after wards it contained a prodigious number of bees – hood – and was one of the heaviest hives I ever saw – Large hives! It also threw a third swarm – In one forming is one – in the other continues – found before the latter a dead Queen – Found near night out side of one of my apiaries a young Queen unattended – cased her for another hive – Weather has been very hot and dry – beautiful rain this A.M. and very – 19th – A large swarm lit upon one of the plum tree around which a honeysuckle and butterfly flower were growing – the most flower I ever saw – got them (most) into the hive stand terribly of no avail – at last placed box over the tree and threw pails full of water upon them so as to drive them up – did not secure them until Saturday evening – more than 24 hours after they swarmed – Had a good second swarm – caught Queen running over the ground put her up in a paper cone – when the bees became uneasy gave her to them – many afterwards lit inquiringly on the finger that held her! put paper cone before them – a number entered it – walked away 2 yards – the most slowly in – set it down – and some left going in and out for several hours! This demonstrates that the Queen has a peculiar scent or smell which attracts the bees – (20th) Have two colonies – one had been drawn two weeks ago and colony set on a new stand – as it had retained the larger portion of its bees it was slow to stay – forced it seized Queen ready matured – (21st) Failed to get Queen of one – have driven it six times and failed to get Queen! (21st) Forced another successfully – Helped feeble stocks – 22nd Found a prolific colony which had not swarmed – bees hung out much – shut them up – too cloudy – comb given to them melted down – many bees killed – body distended with a yellow mass of filth – same as last year – 23 Forced again the hive to after forced – but a few bees – I saw Queen – at bottom – did not come up – had to cut out the comb to get her! ~~Forced the~~ Some of my Queens in nuclei hatched to day –

Those that were hatch by from heat of bees did not hatch - Took away young Queens from nuclei to give them to large Queenless stocks so as to prevent them from broody drone comb - gave nuclei other unhatched ones - Gave a drawn swarm an old Queen not their own - They received her at once - The hood of a hive which had been drawn being been left in bottom few hours without the bees the worms first put their heads out of the cells and then travelled themselves out in great numbers - They were almost ready to seal over! Fancied again the experiment with perfect cell in which Queen had been put - numbers kept entering it - made another like it - in which no Queen was put - They would not notice it - kept a few (4) hours from 1 o'clock - at noon - at sunset one was still on it - Took him out - took it away - kept bees shaking about in search for it - when put back entered it again - carried it back to the offering - bee then left it - it is small - I have bushed my hives with new Queens - did not do it in one - saw them towards night very uneasy - running about - They had comb with brood given to them - they appeared (it was two days ago) to have left the hive - and seem to have attended one with three board of same color but some distance off - saw to day drone comb built during - suspected - found queen cells started - bees will not do to be carefully bushed when young Queens are to leave them -

(24th) Weather quite cool - bees hard worked most wonderfully - but to day the weather staying from working hot - but little done - saw a young Queen unusually small - Wings quite large - one pale in color like a just hatched worker - saw one of this kind last year - Hence that should of my afterwards which stood close together have lost their Queens - They do not appear to have attended to the brood given to them - hives with young Queens ought to be kept at a distance from others - or bushed in the very decided manner - suppose that they were turned around - until their Queens had been impregnated?

25th - Still very cool - bees doing but little - fear that I have tried to multiply too fast - Shall try to make no more - but to build up what I have - It is not wise to disturb bees too much by opening - they will not do - In my hives an increase of one from two best - Don't move old hives - get bees wanted from two with one of the Queens - a few combs say 1 from each - brood maturing - have sealed Queen to give one left Queenless next day - no more swarming and all peaceful - This seems to me more and more the plan if not swarm - double brood swarm - and remove all Queen cells but most

for fear they may do not stay - straighten up more with returning warmth - then no more flying - but feed rapidly with bees - and let honey making be the order of the day - (26th Sunday) very cool - bees do nearly to nothing -
(27th) Cool - beginning to rain - some of my hives with young Queens have had been lost capable or which was not marked - few have had Queens hatched - and the bees appear to have entered another hive (three lei[illegible] between) of the same color! If in hive so were marked I do not think that the Queen would be lost - color has a powerful influence - in this case it marked the young Queen - will assist admirably to prevent bees from going to wrong hive - and will by "looking" keep Queens safe - When I had only four or five hives scattered in the pasture in which there are now 12 the first day of one color we had made my mistake and left flying about evidently lost - now they fly to their 12 by dozens - visited some yesterday - they stick in [illegible] or place - clean of this year - only - hard hatching - bee moth and no infestation of any description - Had last four days nothing done by bees - too cold - to day too wet - Bees have been capped day often opened - no checked water used - difficult to get anything without - have now a number of young Queens of different ages coming forward - the young Queens I have seen unfecundated quite large and a very decided color - last year noticed some 20 no - are not fit old to be young one year old ones - think I clipped wing of an unfecundated one - bees left hive next day - it was a second swarm first had gone off unnoticed - wings ought not to be clipped until bees begin to hang outside -
(28th) Drove a swarm - it had already deserted - found Queen killed and one hatched and two other sealed up - Drove a very heavy hive - had swarmed - took 50 lbs honey - bees almost free of honey but little brood and little room for it - cells where young bees hatched all filled with honey - I am more and more inclining to quite large hives and plenty of bees to begin with - drone colony went to work here next day - (29th) Drove three swarms - one on old one in one of my hives well adapted to regular comb - found no brood - Queen cells - I put hatched in one stick running down - three cells clumsily together - (30th) Tried to make a drone colony take wing to alight around their Queen - it was cool - mean the old Queen by mistake had not left them - shall try it in a great day from the apiary - think it may succeed - Queen might not be that have been lost seen to have new placed

A colony with queen sealed I. examined - too late one had killed queen - one cell still untouched - gave to them bees - did not cluster on it - finally died up queen on it! gave a small nucleus which had hatched a queen - but did not be found - queen cells - found queen afterwards queen there the queen - very small - and yet impregnated - 30th -
Allen flew down unexpectedly - queen below - and bees get down - By stealth bees - but can make them take wing - (July 1st)
Clover still abundant - Do not find queens in some stocks to which I gave my queen - Last given them hand comb - saw drone comb building in two - but not in one - lest queen by my hand - gave it from a stock from which I made to raise queens - Had two exceedingly small queens from Diana lot - better keep queen raisers apart from others -
(2nd) Cool - but exceedingly dry - bees do not gather very much honey - transferred six colonies from my stock hives to glass ones
Found queen in one that I fed two queens - they had not begun to raise J. L. - found none in another - but they have not begun to raise J. L. - gave a superfluous hand comb - queens here seemed to be unusually long in getting fertile - shall not put the middle division of colonies further - buckwheat has been sown in abundance near the - Bees and mice seem to be in upper - transferred colonies were exceedingly peaceable - combs are all straight - but not uniform in thickness and some warped - but one comb on each frame - like my new hives better - think they improved - like the layer in place - ought to be a little larger - 1/2 inch all around - July 7th - Had some rain the 4th - Bees get little honey - no swarms in clover - plenty of second crop - bees fly a little upward to it - Hives now begin to feed easily - July (8th) Noticed a strong stock in which the end unfrosted comb was quite bare of bees - fed - and then it was crowded with clusters all ready for comb building - Bees very inveterate - no comb building - colonies seem weak because they are not in heat - as soon as fed they spread and cover the combs - find it best to lift hive back, and pour in from one of the upper holes - stand feed, more regularly - strong stocks about a pint a day and weak ones much less - just enough to keep them in heat about heading - I want to get all my stocks strong by buckwheat and have good time - so that they may gather then-

Now is the all important season to strengthen up my colonies - the gold season which if not improved all will be lost - I have forty colonies at my apiary - get out 30 in my lines - of these 15 are strong and will need comb to help others - 15 are in need of help - I did hope if I am fortunate to have about ten more - but not until later and I can see success in the first lot - Strong ones will want say two gallons a day and weak ones one gallon - say 60 gallons to the fed - this will make it cost about $1.50 per hive to feed - if with this I did secure say 40 colonies in my lines it will pay most nobly - I shall try feeding syntetically - I find a dead sealed Queen - has had gnawed angle the way from her cocoon - Bees are very bitterson if I open to have an x[illegible] talent - (9th) Drew a powerful swarm - hive been twice before driven without getting Queen - Broke it up - found Queen with a few better comb - Drew another - amazing quantity of brood. Queen when caught was dropping eggs - If old comb is put in frames - it ought to be fastened very straight - or else it will make the others go wrong - when the frames have nothing will go best - (12th) Still exceedingly dry - unusual continued - no honey - Exceedingly difficult to do anything without causing robbing - All operations such as fanning swarms, strengthening should be done before Lady Laurel ceases - Am more than ever a believer in moderate increase - "feeding takes a farm of food - July 14th - Still exceedingly dry - and bees doing nothing - Rent of buckwheat sown in my vicinity - all depends upon weather - shall make no more new swarms (June 1854). Was called away two weeks - feeding was neglected - when returned - bees had commenced going to the stores and in spite of all that I could do they continued to go - and grew weaker and weaker - The Winter was a dreadful one for bees - the Spring exceedingly backward - I was away in Mexico - and my bees were not fed and nearly all perished - In the region where are the swarms of last year perished - Those who fed them in my hives carried them through - Bees did little this year until late - Commenced swarming in Oxford middle of June - Have gathered but little - Thus far made a great deal of honey - honey dews frequent - clover very abundant and fine - I have here no little swarms in my apiary near the stores - If my

bees go made to the stores, shall return them — Have had only two natural swarms — have found a large number alive, have succeeded — are a dense lot — (June 27th) Found a powerful one this A.M. — all right — Held preparation for starting in put full of the bees — Found yesterday at 3. — 12 days ago — from one in my hive — by bees having filled their hive — took them out in sheet — a week after took away all queen cells but one — placed that in bottle — could have bees from it. Queen fed 3 days — must give them another — one placed in a glass tube in another hive hatched — bottle should be kept warm — Hive swarmed on Saturday — which is bees from which swarm had been found — cleared off yesterday (Monday) — without lighting! In Molasses Swarm began first work in March — (June 28th) Found two swarms — then drove two Queens — (28th) Found two more — did not see Queen of old stock — saw Queen May from hive which had swarmed before — Very much slender than fertile Queen — Natural swarm from old stock in March had left — old stock not very strong — swarm was not large — Examined hive found a number of Queen cells — but one sealed — one from which a Queen had hatched naturally!! They must have lost their Queen from disease — could not have raised — Went examine to see whether eggs — Did not see Q. — returned the swarm — C. Jones dine my pudding — (29th) A nice warm yesterday — Bees work very well — Brage which came out of well rotted has been in blossom several days — Warm sheltered — Hybrid drove bees like — Found another swarm — put Queen with a small lot for experiment hive — added the other bees to a swarm of a week old — after sun-set — first bees that attempted to enter Queen killed — no quarreling however — Saw bees carrying in bee-bread into an old stock from which a large swarm with my Queen not fertile swarm — perhaps do not realize their loss — 30th — Found two more — added bees pulled — some stole bee bag in their sacks — Swarm really all hatched — Drumed two more — one had swarmed 17 days before — had a Queen very large from eggs — in one D. attempt to enter was the first seen bee — D. does not sting but it does mean when to go pushes right off a head — At most splendid rain very cool — put bees in their hive — Took out a month sealed Queen with a dull knife — found them after a while all dead — bees have recently come back to remain there — (See Index 2.)

Nov. 27. 1851. – This day I have commenced obtaining names for my hive – ~~and~~ I have subscribed – Saved Lord.

March 15th 1852 – Have heard to day of my success at Washington in the matter of the patent –

May 27. 1852 – Received $10 – for a hive and right – first fruits –

June 11th – Received 50 cts from two visitors – to stay – first fruits –

Aug. 10th 1852 – Rec'd. first bill of Dr Beal – first right sold in Ohio –

Dear Redeemer – precious Name –
Who from heaven to save me came –
Knowing well this poor weak frame
Canst thou love me, blotted name?
Sinful child I love thy blame
On that cruel cross of shame –
Thou shalt conquer in my name.
Yes I love thee blotted name – Oct. 9. 1853 –

Holy Saviour! Precious Name –
Knowing well this poor weak frame
Seeing all its guilt and shame, Burdened sore with
Canst thou love me, blotted name?
Yes, my child – I love thy shame
On that cross for which I came –
Forward! Conquer in my name – Thou shalt conquer that vile frame,
Yes I love thee – blotted name – Oct 14th –

(1866) Experiments. (A)

A beautiful golden Yellow green in a colony of black
[illegible] — Also [illegible]
August 16th — Caged [illegible] with queen to see if queen [illegible] to
[illegible] — 18th — Most of [illegible] dead — one queen [illegible]
black eye [illegible]

Crochets — August 16th —

[illegible]

[illegible]

[illegible] (8, 4) [illegible] hot – 95° [illegible] 96° [illegible] egg gone in one case (2) with last chicken 8 [illegible] In (1) case 9 [illegible] has hatched – the [illegible] egg [illegible] – [illegible] the drone [illegible] [illegible] [illegible]

Longing queen – Can it mean the fairy

Weight of eggs of queen – Experiment to ascertain – Get her to lay in new comb weighed previously with my scales, a few hundred eggs – then see no longer on the head – get rid of eggs through queen – afraid too nice a thing to be determined – ind. Market at 2 mos per day / lay her own weight –

Size of tracheal and guide August 28th (1865) – make some with only a very small guide just enough to form a support for the two sides of the fan before cells –

the weather clear & fine — [illegible] at dinner — after he gave Claire

[illegible]

(6th) 5½ A.M — Mr Lord [illegible] — Some up from Lec-
queen does not travel much — but no proof yet that she has been fatigued.
[illegible] queen travel much — dinner all [illegible]

[illegible]

(9th) [illegible] Lord Cranmer [illegible] — [illegible]
fair dinner. Cranmer (1) has many [illegible] — no sign of fever — (2) many [illegible] — [illegible]
with fever at [illegible] — [illegible] (3) many [illegible] — [illegible]
charge — heat has been [illegible] — [illegible] none [illegible]
[illegible] — [illegible] for [illegible] that in [illegible]
no food [illegible] — [illegible] — [illegible]
[illegible] (1) has been [illegible] (11th) [illegible] — [illegible]
[illegible] Cranmer (2) has killed the [illegible] — gave some [illegible]
[illegible] (2) are killed — (3) hurt [illegible] — [illegible] (3) [illegible]
[illegible] eight age — not so many [illegible] —
[illegible]

13th [illegible]

Sat. [illegible]

15th [illegible]

[illegible]

[illegible]

[

[illegible]

[illegible] 90° [illegible] 76° 92° (28°) 72° 90° (26°) 74° 95° the last week

[illegible]

[illegible]

B(1) Suggestions for the [illegible]

April 28th 1868 – Can now get rid of smearing bees when shaking them off to form nuclei from combs having their fully capped honey – Remove such combs full of bees about fifteen minutes before shaking – bees will leave at the honey –

Sept 1st – Shut up nuclei by day when first formed – but then open at dusk – Shut again at sunrise – bees left nearly – Add bees to them when two weak – and put for a day – if weak may be put in cellar – a large packing box with bottom out to receive them – and fly to rest on the grass in a cool and shady place in very hot weather until there is room for them with the hives –

[illegible]

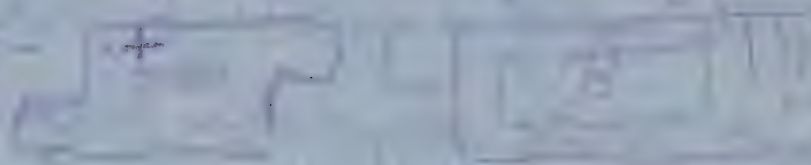
[illegible]

[illegible]

[illegible]

[illegible]

[illegible]



[illegible]

At the farm.

March 29th 1888 — Wm Corwin

had a member of my prisoners bricks marked and burnt. No difficulty in moulding but rather [illegible] — They have been kept for the last year to come home in Dayton — carefully handled — little breakage — At the heads of letter [illegible] A.M.

See p. 125

Illustrations

A beautiful golden Italian Queen is a delight of bees — "It shines a good deed in a naughty world" Shakespeare — Merchant of Venice —

If bees are apt to attach themselves — stick — stiffly — and the quiet — Defer cohoney with angry feelings —

If a colony is given too much food comb —

A bee stung me through a hole in my boot — Thanks and heel of stockings —

If the combs are separated too much and empty frames put between

bees will often desert — Do not give a swiming house —

Bees eat enormously on journey when confined — Glutton — men on voyage of discovery — five meals a day — eat, drink & —

Rule of queen — very much like English Sovereigns — who rule in name but are obliged to do pretty much as the Commons say —

When you head for fine flesh be right — moment you get into a row all stung and know not what you have got — Red Rag — or the black ale right off — have not taken you long to Cadet

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Phila —

Jan. 20th. 1852.

Thermometer 6 A.M. —	— 4°	Mean + 1.75°
9 A.M	0	
3 P.M	+8	
9 P.M	+3	

S. S. S.

Nov. 19th — 1852 —
Weighed 155 lbs —

Feb. 10th 1853 160 lb. !!
August 27th 1852. 177 lbs —
Nov 1852 191 —

Greenfield 1853

6 Mo. 13th — Blue Bird
" 20th — Robin —

Greenfield Jel. 1855.

7 A.M — — 30°
12 M — — 14°

August 15th 1852 — Shanley 1st Sept — 4 Mats $250 — green
M. H. Snipton $150.00 — Shaly 2nd Oct — 4 Mats 250 without green
Wednesday 21st Sept at Dr Bell's

250 = A. Bell

Oct 2d 1852
8.02 — Note $51.93 — 53

Memorandum — Sugar Drop — 5 lb of sugar to a pint of water
boiled to the following point as Shaff time — a few minutes before it comes off
the fire — the Shaff time make it cylinge a early —

Also to refer to Journal of work, volumes to be in the office —

Vol. 1 — Jan. 29th 1852 — Journal begins in new book of books — runs to Oct. 21st — Philadelphia Pa.
Office 20th 1852 to June 30th 1854 — continued right on — Kept in Greenfield Map —
Vol. 2. July 1st 1854 to May 28th 1855 — new book of Vol 2 — Greenfield Map —
Vol 2. May 28th 1855 to July 23. 1855 — Linda Lake — Za — Do
Vol 2. July 23 1855 to Feb. 2 1860 — Ya — Do — Oxford Ohio
Vol. 2. Feb 2 1855 to March 7, 1860 — Ta — Oxford
Do March 7, 1860 to May 23 1860 — Wa — Flushing Long Island
Vol. 1. May 23, 1860 to May 26, 1860 — Ya — Oxford
Do May 26th 1860 to June 22, 1860 — Za — Oxford
Do — June 22, 1860 to May 31st 1861 — Ga — Oxford
Do May 31st 1861 to June 2 1862 — Ta — Oxford
June 2 1862 to June 18 1862 — Za — Oxford
Do June 19th 1862 to August 9 1862 — Ri — Do
Vol 1 August 16 1862 to June 9th 1863 — Ta — Do
Do June 8th 1863 to June 11th 1863 — Ra — Oxford
Do June 12th 1863 to June 18th 1863 — Ri — Do
Do June 18th 1863 to June 26th 1863 — Ro — Do
Do June 27th 1863 to July 15th 1863 — Ta — Do
Do July 15th 1863 to August 1863 — Ri — Do
Do Aug. 6 1864 to August 2 1865 — Ri — Do
Do Aug. 2 1865 to June 12 1866 — Ri — Do
Do June 12th 1866 to June 28 1866 — Ro — Do
Do June 4th 1866 to June 30th 1866

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August 26th 1916 – Lost 3rd. Had a cold in the thorax & partly on affecting my right arm and leg – the leg had to be bandaged very considerably – It did not affect my speech or mental faculties. By June I had recovered fairly well the use of my legs & arm but I was unfit for marching yet – and I been detained in France in the hospital ever since. Early in June I received from my R.A.M. a parcel of 3rd Regt. Pers. Comfort & Bandages and another of my legs & arm were more difficult – after having a great amount of massage & treatment they depressed for me to take my legs & arm & going out in Bath chairs – Early in June I had cut the bandage & the offended – and since then I have been able to use my legs & arm more & more. Had received information of your wounded – I had letters on my legs – but are now in in my back – now I am able. On Sunday 27th I went to Hendon and have limited for further by Dr Pratt's orders – He advised me to stay – and I am at the Hospital – Dr Pratt's orders – Hospital D.C. & the Hospital – I have the reason why we couldn't meet my son in France – Sept 16th – Had bandage for leg operation by Dr Pratt – for my foot – Dr Pratt said I was glad you have your wounds – and for you healthy as it is – rather you remain – I have only I looks as the he could – Since the final operation I have been able to walk & walked not far – many yards – but my chest has not on my foot – Dr Pratt & assured bandage for protection of my Sept 21st – Since the last operation I have been able to walk more & more – but was without assistance of the bandage – and yesterday – but was without assistance of the bandage – and yesterday anything to remark – from my other wounds – Since then – who for good – also – in good health – & another wounded – Dr Pratt's bandage – and I am – I am good health for me – I am – I am good health for me – I am – I am good health – I am – I am good health – I am – I am good health

I again, this Oct. 6th 1889 – Removed from Oxford to this place the
latter part of August – my son in law H. C. Brown leaving his wife and
seven children – Hiscellet son D. Lenaine Bacon is office boy in the
the firm for which his father is principal bookkeeper & treasurer. H.
The next image and Hugh C. the 3rd son attend the High School –
Miss Belle the next and Willie Langshath the next attend one
of the lower public schools – The two youngest – Anna Louisa and
Julia do not yet attend school – About June 1st 1885 I had a return
of my old heart trouble – and the longest attack but one I have ever
had – Soon after reaching Dayton my neck began to swell – and
my recovery was very rapid – not quite so much so as at his swelling
before – I have suffered no serious inconvenience from it since the early
three years ago I was treated by Dr Pretzinger – Od. 3. he found two
small hemorrhoids about the size of hazelnuts and operated again –
I have availed myself of the privilege of free membership in the Turkish
Bath – and can have hot baths which have always helped me – I
hope to do all my circling in their parlors – Bless God for my soul
all his benefits! Nov. 1. 1889 – yesterday was operated upon for what seems
to be a small piles – by Dr Pretzinger of Greenville O. When he began with me in the Spring of 1885
I was a great sufferer – had used injections for a month for nearly two years – one large one had
protruded for nearly a year – frequent bleedings – but only had more than one at any time – Dr

In December 1885 seemed almost cured – The return of my old headache compelled me to relinquish further treatment – Oct 3. the 5th fame only two-size of a ~~huge~~ hazel nut – Oct. 31 only one – Rectum nearly all right – the measles in good condition – For the last month my health has been then I can re-collect it to have ever been – Have used an unusual amount of walking exercise and very active – very happy &c – Nov. 15th – Continue bright and well – On Saturday (13th) met Prof. Stiles Principal of Dayton High School – Made very happy to learn from him that by availing himself of my suggestion (opening a door leading to the lower) the condition of that building was greatly improved – Happier I think than many a man who has made a large sum of money! Have had a very large double heater burning anthracite stowed up in our dining room – By opening window for a short time before bed hour, room below filled with pure air – and bed room all night long supplied with a moderate flow of good air – Nearly 50 years ago at Greenfield Mass I discovered and applied the principle on which these double heaters self-replenishing bone burners work – Had bandbox sheet iron air tights – the doors were not tight enough and when wind blew strongly admitted so much air as to burn the wood too fast – Had a whole cut in the smoke pipe near where it entered flue – covered by a united piece of sheet iron – By closing this – the air rushed into the flue – reversing the draught thro the stove – in the winds draft checked without air admitted to burn out wood too fast! But for the use of this principle it would be impossible to regulate these burners – Every door will invariably admit air, and if this admitted freely on the fuel ~~without~~ before passing into the flue, a moderate combustion could not be maintained – Too many stoves doors are now made for economy of fuel –

August 16th 1895 – I Dr. C. A Perkins, 11 A.M – May at some other time set down occurrences from where I left off – About last of January began to recover from an attack of the "heart trouble" (pneumonia) which has lasted nearly three years. Recovery not in quite so short time as usual. I shall have room for a full description of my case, to Dr. N. T. Wood who is as the case of mine.

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Dromed. July 16th (extract from another record.) We have been
hitching down so have determined to carry on some distance
at 7.45 pm. Left a good deal behind (after gentlemen having been lost) in
a forest for 2 hours waiting to lay down again & actually in a tiny clearing
which is 1½ feet for a few days. We had to quit a number of eggs & at
17th. Planned at 8 pm to be along yesterday & today. Another
person will probably on the down road & they have another 6 or
12 or 24 hours. Dense tropical forest. Very dense collect. 25th & 26th
all without August 18th 5 pm. Left hut. Journey of 5 days.
5 pm. On the Potato. Our Hitching — 28 days. 17th home from town and
3 more 11th 6.30 pm. Among the Indians 5 pm. 22 days 17th home from town and
2 or 3 days. Left hut & then were having some good. Distance left by
1st 10 miles but 1 — 3 pm. 20th left hut & left Dromed 19th 6.30 pm.
Rest on the Potato — perfect. Indian food. Dromed. Dromed
ground of Indian — Defiantly 3 from the hut. Left 15th 3 pm. Rest of Indians
who they were fully but 2 then divide loads so at time. Left Dromed day
fully made. If behind up in river Dromedary. Dromed left collected forced. Over
Rest out of home 204 miles. Very fully loaded. Dromed to Dromedary 17th 6 pm
one down were to unknown. Dromed. Dromed. Dromed. Dromed
(Some time of these fields Rest about just into to Dromedary Dromedary Dromedary
Dromedary. Dromedary Dromedary Dromedary Dromedary Dromedary Dromedary
Dromedary Dromedary Dromedary Dromedary Dromedary Dromedary Dromedary
19th 2½ pm. Up down to Dromedary Dromedary Dromedary Dromedary
3 pm. Dromedary Dromedary Dromedary Dromedary Dromedary Dromedary
Dromedary

[illegible]

[illegible]

[illegible]

[illegible]

N.B. [illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

The lower strength has the double purpose in the frame to prevent the frame sagging together & perfect uniformity as I have found by a two month's trial — very difficult to speak definitely — when only the life or infirmity of frames can really be fully determined so as to prevent the upper & lower frames from being regulated & under, then the frames cannot be built somewhat further apart to prepare the bees for winter by giving greater facilities of passing over & under — & the results DEFINITELY are very far better for the apart later on the bees without quite trouble and see the special advantages of the above fitting, can very most being secured — I & I shall in my frames after bees —

P.S. Just lately I've had a little walking down by the bees — [illegible] [illegible] walking [illegible] just begin to wind [illegible] — [illegible] [illegible] [illegible]

[illegible]

[illegible]

18th – Active in blocks [illegible] bottom leaves [illegible] ground
and when most of the leaves are [illegible] frosty that the [illegible] light on head
[illegible] of the orchard – [illegible] leaves for [illegible] – very few for bottom –
[illegible] of the light [illegible] leaves [illegible] [illegible] [illegible]
[illegible] the [illegible] leaves [illegible] of it can [illegible] along as! Diomed.
Plum confined and [illegible] my shoulders of quite day in [illegible]
12.30 P.M. Blackbirds are [illegible] about 75°. (for 62 "to 70" [illegible] today)
Heavy [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]
[illegible]

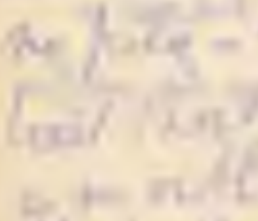
[illegible] very down to [illegible] it is [illegible] what [illegible]
[illegible] great green red [illegible] most of the [illegible] but [illegible] there [illegible]
he and [illegible] my [illegible] green [illegible] that to [illegible] [illegible] may [illegible] the
[illegible] [illegible] — [illegible] the [illegible] to [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]
[illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [

15th 20° - 16th 18° - 17th 24° 56° A few bees bring white pollen - Opened two hives - brood in two frames - eggs! In half of my hives brood and eggs - very few of these late bred bees are lost - and these hives have largely increased in bees - If they winter well - very great gain - Better plan for mouse guard - Tack zinc over whole entrance - In the middle cut out so that dead bees can be dragged out - In very cloudy cold weather contract with blocks - Is not wooden waste over their bunch about the best winter protection? So easy to remove when examination to be made - Is it not cheaper and better than chaff cushion - 18th 48° - Heavy rain last night - 19th cold - Is for fair weather - [illegible]

[illegible]

[illegible]

[illegible]



[illegible] — [illegible] — [illegible] — [

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May 26th 1888 – Hive Jacket – or Outside Covering – This idea

The idea has occurred to me of a mantle outside covering for say the Hedden brood chamber (one section) to better adapt the hive for out door wintering – A mantle outside of tarred paper several thicknesses to fit up snug – and left off to let hive warm up when desired by sun – gums &c – Perhaps the following plan may work well – Put the tarred paper (or proper thicknesses of paper) on the under side of Hedden Bottom board – then, especially if tar band is kept by their bonds so as to come nearly to the top of stand on wh. B.B. rests – the inside of the B.B. will not get so cold – Now let holes be put in the old S. way to receive wire cloth for winter ventilation and to be slipped by the wicker lids at the ~~start~~ of the year when bees are flying – we can keep the S. blocks nearly or quite shut in cold weather and yet not cut off the air needed from below – and this air will not be as cold as what would enter from the usual entrance – Rolling cover be slipped in the way by shutting up the usual entrance – and the bees imprisoned have all the air they want – to

Now further let the sections of the Hedden hive be painted a dark color so as to heat thro' (as the sun) Set hive just S.E. – so that in the winter the heat of the sun would warm up – The summer shade cover might be in place at any time to prevent too much heat – Set-up cover be of same dark color to heat thro – Bees to winter well out of doors, need when the severe cold is of long enough continuance to prevent them ~~slowly~~ about enough to get supplies – May not this plan give it to them?

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Corvan & Langstroth bricks continued from (A.)

March 29th 1888 – At the breakfast table this A.M. a new and probably valuable thought occurred to me in connection with these bricks – viz in building hollow walls to use only enough of my prismoidal bricks (with Corvan shoulders) to get the means of tying at intervals the walls (front to rear) so as to get all the strength needed. Or if bricks without the Corvan shoulders are used – then there may be made plain only using enough for tying, of the prismoidal hollows –

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Ventilation for human beings

October 14th 1887. I have thought much how to ventilate for human beings — From the bees comes the suggestion of a current of bad air forced out, to be replaced by a current of pure air — Done by the fanning ventilators — just as the air of a sick chamber may be renewed without opening windows, by the so called pumping process with a door opening into any place where there is good air — Ventilation artificial for men, is the establishment of this double current — How to do this where a current of warm pure air can be brought in, and another of impure air carried out — is well known — The difficulty if not impossibility of heating many rooms at different elevations and different distances from the hot air chamber, amounts often to an impossibility — If all is looking to satisfaction, a mere change in the force or direction or both of the wind may cause some rooms to be too warm while others are too cold — What become quite common therefore to heat by radiators with steam or hot water — In one way this is a success — as the proper amount of radiating surface can be secured and the requisite heat obtained and controlled — But this gives no ventilation! It is on the old box or close stove system — Now the radiators heating the air, if there are proper vents for it to pass off, it will be easy to get rid of the impure air, and replace it by fresh air which will force itself in at every crack, window &c wherever it has a chance — It is easy to apply this system to all buildings where there is ready access to any steeple, tower &c If a church or any building must be heated by hot air — Let there be from the audience room, by register and air duct the means of supplying air to the heating chamber — Say the air in the audience room is 40° out of doors — zero — The 40° air is sent down and up, and the room heated much sooner than by using the zero air — This answers if the air is as it readily may be, made pure to begin with — Just as soon as the air of the audience room is being vitiated by human lungs, it is no longer allowed to revolve — But fresh air from outside is introduced to the heating chamber — If there is no ready escape for the vitiated air to pass out, the heater labors to great disadvantage — To get pure warm air into the room, you must force out air already there — To this is to let in much less hot pure air than you desire — The current is too slow to carry off all the heat that ought to be available from the heater — To counteract this the heater is over-work — fuel wasted and the pure outdoor air vitiated by red hot or overheated metallic surfaces. In addition the very hot air that comes from the heater chamber

is much more absolute of moisture — producing men with evaporating receptacles, that they dry unwholesome air so much complained of — this dry hot air cracks the woodwork, and draws its needed moisture from every part of the human body — nostrils, mouth &c. &c. If an opening is made for the ready egress of the vitiated air, the velocity of the air from the heater is so much increased as to largely overbalance any loss of temperature from escape of the vitiated heated air of the audience room — and your room will heat all the faster because you ventilate! Thus enabling one to accomplish his object without overworking the heater — & as how to get a proper escape for the vitiated air, is easy enough where you have access to a tower, steeple attic &c — but take a room where ~~pure~~ pure air is needed and which must rely on its own resources. How what? Outside of one of the windows let there be of zinc or wood a ventilating shaft — ↓ narrowing towards the top — carried as high as circumstances will permit — when lower sash is raised the bad air will find exit — good air brought in if hospital under stairs to be warmed — Churches, School rooms, public rooms &c. may in this way get ventilation — this shaft outside being in lieu of opening into steeple, ventilating flue &c. 2.E.D —

Oct 21. Have within the last week arranged for having Miss Sarah Peirce's kindergarten school room ventilated by such an outside shaft — If a patent can be obtained for this arrangement it might prove valuable — but my mind is most set on a simple humanity — examined Dayton the hacker and visited the arrangement of the Dayton High School — Beautiful illustration of how not to do it. The large room for declamation to can be easily heated by a very cheap alteration of the furnace — using a conical reflector at top and inclosing the hot air pipes to discharge higher up in the room so as to get the proper heat for the pipes. If their ventilating flue has not sufficient capacity it might be enlarged — or outside one added. The tower also can be used in ventilating the main building. Very little expense — the beauty of my system is its cheapness — it costs nothing to get pure air than to the bad. Nov 1st Last Friday (Oct 29) I had a window shaft window ventilator completed in Miss Sarah Peirce's large kindergarten school room. It ought to have been carried above the roof, one to have terminated in an Emerson other roof ventilator. Sitting with my back to it I could show a good current of air passing through it. In winter, heated by radiation from hot water or steam pipes. Some coils may be used near the base of the ventilator to increase the draft. Nov. 3. Unfavorable day for test ventilation. Found Miss Peirce's kindergarten room smoky from every arrangement of stove pipe — air not vitiated by humans and ventilator all right — March 29th 1880 Some time ago David McCall of Oxford showed me a window ventilator — which was made one yet might be allowed to remain on the large inside without interfering with anything — intended to do what a simple board in which the sash rests or has been used for — [redacted] — Fig. 2 shows the groove to let this board slide into a small [illegible] end. This may be inside or outside

151. If the lower sash is raised just enough not to let air into the room above this strip - then a current of air will flow into the room between the upper and lower sash - and will shoot upward, so as not to annoy the occupants of the room. as when a sash is raised or lowered — This action of a ventilating board is old - when the lower sash rests on the board - and it is necessary to remove the board to fasten the sash or blinds —

On the 27th I saw at the residence of Mr Crandall all his windows fitted with the top of the upper sash made so as to allow four inches to run up into a groove - so that the upper sash could be lowered and the window not get - The upper part of the sash might go six or more inches into this groove - This he got from an English writer on Health of homes - and is the plan when a new building is erected -

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